Soybean Research In Arkansas, 1936-48

Varietal Tests for Seed and Hay and Studies in Disease Control

By C. Roy Adair, C. K. McClelland, and E. M. Cralley

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By C. Roy Adair, C. K. McClelland, and E. M. Cralley [2]

During the past 25 or 30 years the soybean has become an important crop plant in Arkansas. At first soybeans were grown primarily for hay production. The first record of soybeans being harvested for the seed was in 1924 when 1,400 acres were cut and threshed. The average yield reported in that year was 14 bushels per acre. The total acreage of soybeans increased in most years until 1943 when 620,000 acres were planted and 267,000 acres were harvested for seed. The total acreage has declined since 1943 but the trend in acreage for seed production has continued up.

There was a rapid increase in the acreage harvested for seed from 1941 to 1948, brought about largely by the demand for oil seeds. Accompanying the increase were the development of adequate harvesting machinery, the use of better soils for growing soybeans, and the development of varieties which produce high yields of seed under Arkansas conditions.

There has been an increase in the reported yields of seed for the 25-year period. The yields have varied from year to year because of environmental factors, but 5-year average yields show an upward trend. The average yield for 1924 to 1928 was 10.2 bushels per acre; for 1929 to 1933 it was 10.6 bushels; for 1934 to 1938 it was 10.5 bushels; for 1939 to 1943 it was 12.8 bushels, and for 1944 to 1948 it was 16.3 bushels. This increase in reported yield per acre during the last ten years, and especially during the last five years, has resulted from the use of better soils for growing the crop and a change to better adapted varieties. None of the highest yielding varieties now commonly grown were reported in Arkansas Agricultural Experiment Station Bulletin 334, published in 1936.

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1 During the period 1943 to 1948 this work was conducted as a cooperative project between the Arkansas Agricultural Experiment Station and the U. S. Regional Soybean Laboratory, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture.

2 Agronomist, U. S. Department of Agriculture; emeritus professor of agronomy, retired; and plant pathologist, Arkansas Agricultural Experiment Station, respectively.

There has been a decline in recent years in the production of soybeans for hay. This probably has been caused by a shift to the use of other crops for hay production and the practice of harvesting more of the crop for seed because of the demand for seed and the availability of harvesting machinery.

The performance of soybean varieties and strains at 10 places in Arkansas are reported in this bulletin. Seed yields were obtained at all 10 locations, while hay yields were obtained at only seven.

Material and Methods

The varieties and strains tested included selections made at the various stations in Arkansas, and material obtained from other state experiment stations, the United States Department of Agriculture, and private breeders. Until 1943 the exchange of material with other agencies and breeders was on a very informal basis. In 1943 the southern regional soybean testing program was started. Uniform soybean varietal experiments were conducted by the U. S. Regional Soybean Laboratory in cooperation with the agricultural experiment stations in 12 southern states. Since that time outstanding varieties and strains from experiment stations in all of the southern and mid-central states have been available through the cooperative soybean program.

Many of the varieties reported in this bulletin are not of commercial importance in Arkansas. Some have been replaced by more productive varieties; others are grown in other sections but are not adapted in Arkansas. Data on these varieties are reported to give a comparison with the higher yielding varieties which are available.

Detailed descriptions of the varieties are not reported. Most have been described by Etheridge, Helm, and King (3), McClelland (7), and Morse and Cartter (8, 9). Many selections made in Arkansas or received from other sources which were tested for a few years and then discarded are not reported.

Many of the strains reported are designated only by numbers. Numbers preceded by F.C. or P.I. indicate the strains were obtained from the United States Department of Agriculture. Num-

bers preceded by C, S, and N are from agricultural experiment stations in Indiana, Missouri, and North Carolina, respectively.

Cultural practices followed were similar to those in general use in each area where the tests were conducted. The seedbeds were prepared by plowing, disking, and harrowing in such a manner that they were usually firm and reasonably fine. The rows were planted on beds or flat, depending on the usual practice for each area. In these tests the soybeans usually were not fertilized; however, fertilizer was applied during some of the years in the tests at Marianna and Clarkedale. Information regarding fertilization is included in the discussion of those two tests. Cultivation during the early part of the growing season was with the customary mule- or tractor-drawn cultivator. A minimum of hand hoeing was done, although the tests were hoed if it was not possible to control the weeds and grass by cultivation.

During the earlier years of the work all varieties were included in one test without regard to date of maturity. Starting in 1943 the varieties and strains grown for seed were divided into groups according to maturity dates. These groups are designated in this bulletin as "early," "early midseason," "late midseason," and "late." All varieties harvested for hay have always been included in one group at each station.

From three to five randomized replications were used, with four replications the most common number. Since 1943 all tests have been arranged as quadruplicated, randomized, complete block experiments.

The planting dates were usually between May 15 and June 10 and were during the last week in May if weather permitted. Planting rate was approximately one viable seed per inch of row. This is equivalent to three to four pecks per acre depending on the size of seed and the width of row spacing. Rows were from 16 to 66 feet long. The 16-foot rows were used in the tests conducted on outlying fields and 32- to 66-foot rows were used on the stations.

Observations were made and recorded on plant height, lodging, time of maturity of the seed, shattering, seed quality, seed size, seed yield, per cents of protein and oil and iodine number of

oil[3] in the seed, and the reaction of the varieties to diseases that occurred naturally in the field.

Plant height was determined by measuring several plants in each row from the ground to their top extremity.

Lodging was recorded on a scale of class 1 to class 5. Class 1 indicates nearly all plants were erect; class 2, either all plants were leaning slightly or a few plants were down; class 3, either all plants were leaning moderately or from 25 to 50 per cent of the plants were down; class 4, either all of the plants were leaning considerably or from 51 to 80 per cent of the plants were down; and class 5, more than 80 per cent of the plants were down.

A variety was considered **mature** when the seeds and stems had dried down and nearly all of the leaves had fallen. Days from planting to maturity are reported for the work at Stuttgart. The results for the other stations were similar.

Observations were made on **shattering** approximately two weeks after the variety was ripe enough to combine. The amount of shattering was recorded on a scale of class 1 to class 5. The ranges of the five classes were: 0 to 5 per cent; 6 to 15 per cent; 16 to 25 per cent; 26 to 50 per cent; and more than 50 per cent. Shattering data are reported only for Stuttgart as shattering is usually more severe there than elsewhere in the state.

Seed quality was based on quality of the seed after threshing. The factors considered in estimating quality were development of the seed, wrinkling, damage, presence of disease, and color. Quality was recorded on a scale of class 1 to class 5. Seed in class 1 was of very good quality; seed in class 5 was of very poor quality.

Seed size was determined by weighing 100 seeds and computing the number per pound.

Seed yield was determined after the seed had been stored under uniform conditions until seed from all plots had approximately the same moisture content.

Samples for **chemical analysis** consisted of equal amounts of seed from each replication which were put together to make up a

[3] Iodine number represents the number of grams of iodine that 100 grams of the material will absorb. It is an index of the unsaturation of the material, and shows the ease of polimerization. Oil with a low iodine value is best suited for food use; oil with a high iodine value is best suited for use in paint.

composite sample for each variety from each test. The chemical determinations were made at the U. S. Regional Soybean Laboratory, Urbana, Ill. Chemical data are reported on a dry weight basis.

The varieties harvested for hay were cut when the seeds were about one-third to one-half developed. The green weight of the entire plot was determined. A small sample (usually 10 pounds) was dried to a constant air dry weight. The per cent moisture was determined and the yield of the entire plot was then corrected to an air dry or cured hay basis.

The amount by which seed and hay yields of two varieties must differ for the difference to be significant was computed by analysis of variance methods. These values are given in the yield tables as the least significant difference (L.S.D.) at the 5 per cent level for the mean of each variety as compared to the check variety.

The average yields of seed and hay are reported. The varieties included in each of the tables were not all grown the same number of years. Therefore, the average value for each of the factors reported is given for each variety and the average of a standard variety for the same years is given in parentheses immediately following. Arksoy (P.I. 37335) was used as the standard grain variety in earlier years. In the later years, S100 was used as the standard variety in the early group, Ogden as the standard variety in the two midseason groups, and Mamloxi as the standard variety in the late group. Otootan was used as the standard variety in some of the hay tests.

Experiments reported in this bulletin were conducted at the Main Experiment Station, Fayetteville; the Rice Branch Experiment Station, Stuttgart; the Cotton Branch Experiment Station, Marianna; and the Fruit and Truck Branch Experiment Station, Hope, during the 13-year period 1936 to 1948. Other experiments which are reported were conducted during some of the years at the Livestock and Forestry Branch Experiment Station, Batesville; the Delta Substation of the Cotton Branch Experiment Station, Clarkedale; the Delta Farm at Soudan, Lee County; and on private farms in Mississippi, Desha, and Miller counties.

RESULTS OF VARIETAL TESTS

Main Experiment Station, Fayetteville

The experiments at the Main Station, Fayetteville, were conducted on Bolivar silt loam soil which is typical of a rather large area in the northwestern section of Arkansas. The soybeans were grown in rotation with other crops such as corn, oats, and sorghum in a rotation recommended for the area. No fertilizer was applied to the soybeans although other crops in the rotation were fertilized.

Seed Yields

The performances of a standard early variety (S100), an early midseason variety (Ogden), and a late midseason variety (Volstate) at this station during the period 1943-48 are given in Table 1. Yields varied considerably from year to year, from a low of 3.7 bushels per acre for Volstate in a year with low rainfall to a high of 28.3 bushels for the same variety in a year when rainfall was abundant. Ogden gave the highest mean yield, or 15.6 bushels for the six years. S100 seed had the highest protein content and the lowest oil content, and its oil had the lowest iodine value.

Table 1. Performance of Three Standard Soybean Varieties, Main Experiment Station, Fayetteville, 1943-48, Together with Rainfall Data

Factor and variety		Mean	1943	1944	1945	1946	1947	1948
Yield per acre								
S100	*Bushels*	12.5	6.4	15.0	16.0	9.1	6.9	21.7
Ogden	*Bushels*	15.6	7.8	15.0	26.0	11.5	12.1	20.9
Volstate	*Bushels*	13.4	3.7	9.8	28.3	9.1	12.9[1]	16.8[1]
Protein								
S100	*Per cent*	45.6[2]	45.4	44.5	43.1	48.4	46.3	45.4
Ogden	*Per cent*	42.8	44.9	41.6	40.4	43.3	.....	43.8
Volstate	*Per cent*	42.5	42.7	41.6	39.0	44.7	.....	44.3[1]
Oil								
S100	*Per cent*	18.7[2]	17.5	19.0	19.1	18.4	18.5	19.5
Ogden	*Per cent*	19.9	18.0	20.4	21.3	21.1	.....	18.6
Volstate	*Per cent*	19.5	17.9	20.2	21.1	20.1	.....	18.4[1]
Iodine value of oil								
S100	*Number*	127.6[2]	123.9	129.6	123.8	130.3	122.9	135.0
Ogden	*Number*	133.2	135.1	128.0	135.1	132.6	.....	135.4
Volstate	*Number*	135.2	139.7	132.3	136.7	135.1	.....	132.2[1]
Rainfall								
July	*Inches*	3.12	0.34	2.23	6.17	3.28	2.18	4.54
August	*Inches*	3.64	0.83	6.39	2.43	0.70	0.90	10.62

[1]Roanoke was grown in 1947 and 1948.
[2]Five-year mean values for S100 were: Protein, 45.4 per cent; oil, 18.7 per cent; iodine number, 128.5.

Eighty-three varieties which were included in the seed yield tests during the period 1936 to 1944 are considered in this bulletin. The average seed yields for 49 of these varieties are given in Appendix Table I, and the average yields for the other 34 are given in Appendix Table 2.

Arksoy produced an average of 11.4 bushels during the nine-year period. It gave higher average seed yields than 45 of the varieties listed in Appendix Table 1, although this difference was statistically significant for only 38 varieties. None of the 45 varieties are recommended for seed production in this area of the state. The average yields of Ogden, Volstate, and Ralsoy exceeded those produced by Arksoy by 1.8, 0.4, and 1.1 bushels per acre, respectively. These average differences are too small to be statistically significant, although Ogden and Ralsoy were consistently higher in yield. Arksoy produced a higher average seed yield than all the varieties and strains given in Appendix Table 2.

The average grain yields and other data for the 44 varieties grown during the six years 1943-48 in the uniform tests are given in Appendix Table 3. Results for 10 early, 20 early midseason, and 14 late midseason varieties are included. Mamloxi, the only late variety reported, is included with the late midseason group.

S100 exceeded all other early varieties in yield of seed, the difference being statistically significant in the case of six varieties. It gave an average yield of 12.5 bushels for a six-year period. S100 was higher than all varieties except Boone in per cent of protein, and lower than all others in the group in per cent of oil. The Hongkong and Lincoln varieties had the highest iodine number of the oil, but S100 had oil with a higher iodine value than the other seven varieties.

Ogden, in the early midseason group, produced a significantly higher average seed yield than all of the varieties except Hale 12 and Dortchsoy 2, which are Ogden selections. Its average yield was 15.6 bushels for the six-year period. The seed of Ogden was lower in protein content than all other varieties in this group except Dortchsoy 2 and Arkan, and higher in oil content than all varieties except Dortchsoy 2. Its oil had a higher iodine number than all varieties in the group except Delsoy and Armredo.

In the late midseason group Ogden produced a significantly higher average seed yield than the other 13 varieties in that group. Three of the varieties in this group were lower and 10 were higher in per cent of protein in the seed than Ogden. The seed of Ogden had a higher oil content than the other 13 varieties, but the iodine number of the oil of Ogden seed was lower than for the other 13 varieties.

Hay Yields

The average hay yields for 64 varieties grown during the period 1936 to 1948 are given in Appendix Table 1. Twenty-three of those varieties exceeded Arksoy in average yield of hay and one equalled it. However the difference was significant for only 11 varieties. Many of the varieties that produced high yields mature late so that it would be difficult to cure the hay. Ogden, however, which made the highest yield in comparison with Arksoy, or 2.32 tons over an eight-year period, matures at the same time as Arksoy and would be satisfactory for hay at Fayetteville. The average hay yields of 36 varieties grown during the period 1936 to 1942 are given in Appendix Table 2. Two of the strains produced significantly higher hay yields than Arksoy.

Rice Branch Experiment Station, Stuttgart

The soybean varietal experiments at the Rice Branch Experiment Station, Stuttgart, were conducted on Crowley silt loam soil. That is the predominant soil type on the parts of Arkansas, Lonoke, Monroe, and Prairie counties known as Grand Prairie, and it is also found in smaller areas in eastern and southern Arkansas. The soybeans were grown in rotation with rice, which is a common practice in that area.

Seed Yields

The performances at Stuttgart of the early, early midseason, and late midseason varieties S100, Ogden, and Volstate for the period 1943-48 are given in Table 2. Volstate produced the highest average yield of the three varieties, followed by Ogden. Its seed had the lowest protein content and the highest oil content,

Table 2. Performance of Three Standard Soybean Varieties, Rice Branch Experiment Station, Stuttgart, 1943-48, Together with Rainfall Data

Factor and variety		Mean	1943	1944	1945	1946	1947	1948
Yield per acre								
S100	*Bushels*	15.2	18.4	9.0	18.3	13.8	11.9	19.5
Ogden	*Bushels*	16.6	15.2	17.5	22.7	10.9	10.7	22.0
Volstate	*Bushels*	18.2	10.4	24.0	19.8	17.6	13.6	23.6
Protein								
S100	*Per cent*	46.0	49.5	47.1	43.1	45.2	46.0	45.4
Ogden	*Per cent*	44.5	47.1	44.1	43.4	44.2	44.6	43.7
Volstate	*Per cent*	42.5	47.1	41.1	41.2	41.1	41.8	42.5
Oil								
S100	*Per cent*	19.2	17.3	19.3	19.1	20.1	19.7	19.5
Ogden	*Per cent*	20.4	18.1	21.8	21.2	20.9	20.1	20.3
Volstate	*Per cent*	20.9	18.1	22.2	21.7	21.8	21.4	20.0
Iodine value of oil								
S100	*Number*	127.1	124.8	128.2	123.8	130.4	121.6	133.8
Ogden	*Number*	131.4	130.9	130.6	131.6	134.3	126.4	134.5
Volstate	*Number*	133.6	134.4	132.2	133.7	134.5	133.7	133.2
Rainfall								
July	*Inches*	3.13	0.62	2.15	5.43	4.98	0.79	4.79
August	*Inches*	1.96	0.04	3.79	1.36	0.42	0.67	5.48

and its oil the highest iodine value. At this station also, insufficient rainfall in 1943 and 1947 reduced yields considerably.

During the period 1936 to 1944, 97 varieties were included in the seed yield experiment. Average seed yields and the number of days from planting to maturity for 34 of those varieties are given in Appendix Table 4. Arksoy produced an average yield of 14.5 bushels which was higher than all but four of the other varieties shown in that table. Two of the varieties which exceeded Arksoy were Arksoy 2913 and Ralsoy, both of which are selections from Arksoy. The differences were only 0.2 and 0.1 bushel, respectively, and of course were not significant. Looney 3 produced an average of 1.0 bushel per acre more than Arksoy which also was not significant. Ogden produced higher seed yields than Arksoy four of the five years it was in this experiment, and its average yield for the five years was significaantly higher than Arksoy's. However, in the fifth year Arksoy produced a significantly higher yield than did Ogden.

The average seed yields and days from planting to maturity for 63 additional varieties grown in this same experiment from 1936 to 1944 are given in Appendix Table 5. Arksoy produced a higher average seed yield than 45 of the varieties in that group,

being significantly higher than 25 varieties. Seventeen varieties produced higher average seed yields than did Arksoy, the difference being significant in six cases. Most of the varieties producing higher yields were late-maturing varieties that benefited more from the late summer rain in 1937 than did Arksoy.

The average seed yields, and number of days from planting to maturity for 63 varieties grown in the uniform soybean varietal experiments from 1943 to 1948 are given in Appendix Table 6, and the average values for other characters and chemical data are given in Appendix Table 7. Results for 10 early, 21 early midseason, 15 late midseason, and 17 late varieties are given.

S100 produced a significantly higher average yield than any of the other varieties in the early group. Its average yield for the six-year period was 15.2 bushels. S100 was slightly taller than all varieties except Macoupin and had better quality seed with a higher per cent of protein than all the others. S100 seed was lowest in oil content, being 3.0 per cent less than Lincoln which led the list with 22.6 per cent. The later varieties in this group had the highest iodine number of the oil with the exception of Lincoln.

In the early midseason group, Ogden produced a higher average seed yield than 15 varieties, 12 of the differences being significant, and a lower average yield than five varieties. In none of the five cases were the differences significant except for the strain which was grown for only two years. All varieties in this group were short to medium tall in height and showed very little lodging except for Georgia 731 which was taller and lodged seriously. Shattering was bad for many of the varieties. This is the most serious objection to Ogden and its selections. The seed quality of most varieties was satisfactory. On the basis of the chemical composition of the seed the varieties in this group can be divided into (1) those with high per cent of oil and low per cent of protein and (2) those with a lower per cent of oil and high per cent of protein. In the first group are the Ogden types such as Ogden, Dortchsoy 2, and Hale 12, as well as Magnolia, Rose Non Pop, and Armredo. In the second group are the Arksoy types such as Arksoy 2913, Dortchsoy 7, Ralsoy, Gem, and Kilpatrick 10, and also Mamredo. The iodine number of the oil

of most varieties in this group was intermediate between the values of the early and late varieties.

Results for the Ogden variety are included with the late midseason group for comparison. Ogden produced a higher average seed yield than eight varieties (significantly higher in the case of six), and a lower yield than seven of the varieties in this group. Of the latter seven, only Volstate, Roanoke, Burdette 20, and Tanner produced significantly higher seed yields than Ogden. Ogden was shorter, lodged less, shattered more, and had seed slightly poorer in quality than most varieties in this group. The forage type varieties in this group, namely Palmetto, Missoy, Monetta, CNS, and Tanner, generally had a higher per cent of protein, a lower per cent of oil, and a higher iodine number of the oil than Ogden. Volstate, Roanoke, N45-3563, and Burdette 20 had seeds with slightly higher oil content than Ogden.

The late varieties, as a group, produced lower seed yields and had seed with a lower oil content than the varieties in the late midseason group. The six-year average seed yield for Mamloxi was 14.7 bushels per acre with an oil content of 17.3 per cent, whereas Volstate produced an average seed yield of 18.2 bushels per acre with an oil content of 20.9 per cent. Those two varieties are representative of the two maturity groups and show the superiority of the late midseason varieties over the late varieties for seed production.

The seed yield, days from planting to maturity, and chemical composition of the seed for 14 varieties grown only in 1943 are given in Appendix Table 8. Ogden outyielded all of these varieties in 1943.

Hay Yields

The hay yields and days from planting to maturity are reported for 102 varieties. Results for 34 of the varieties are given in Appendix Table 4 and for 68 in Appendix Table 5. Otootan, a late-maturing forage type variety, was used as the standard variety for comparison. It produced an average of 2.15 tons for the nine-year period. Otootan produced a higher average yield of hay than 31 of the varieties listed in Appendix Table 4. Only

Tennessee Non Pop produced a significantly higher average hay yield than Otootan, and it has coarser stems and makes poorer quality hay than Otootan. Otootan appeared equal or superior in hay production to all of the varieties listed in Appendix Table 5 except the strain 95882 which gave significantly higher yields for 1941-42.

Cotton Branch Experiment Station, Marianna

The varietal experiments with soybeans were conducted on Richland silt loam at the Cotton Branch Experiment Station, Marianna. This soil is quite common in east central Arkansas and the results should be applicable to quite a large area. The soybean varietal experiments were conducted in rotation with cotton and corn, which is a common practice in that area. Fertilizer was applied before planting soybeans in two of the years. A 4-8-12 fertilizer at the rate of 400 pounds per acre was applied in 1943, and a 6-12-6 fertilizer at the rate of 200 pounds per acre was applied in 1945.

Seed Yields

During the period 1936 to 1944, 47 varieties of soybeans were included in the seed yield experiments. The average seed yields for 15 of those varieties are given in Appendix Table 9 and data for the other 32 are given in Appendix Table 10. Arksoy 2913 was used as the standard variety in this experiment. Its average yield for the nine years was 21.7 bushels. It produced higher average yields than 10 of the varieties in Appendix Table 9, being significantly higher than nine. Only Ogden produced a significantly higher average seed yield than Arksoy 2913. Arksoy 2913 produced higher average seed yields than any of the other varieties listed in Appendix Table 10, being significantly higher than all but two.

The average grain yields, data for other agronomic characters, and chemical data are given in Appendix Table 11 for the varieties tested in the uniform varietal experiments during the period 1943 to 1948. Chemical data were not obtained in 1947 and 1948. There were 20 early midseason, 15 late midseason, and 17 late varieties in the experiment.

S100 was the only early variety tested so it was included with the early midseason group. It was included in the experiment four years. It produced significantly less seed than Ogden during three of those years.

Ogden produced a higher average seed yield than any of the other varieties in the early midseason group except Hale 12 and N45-2885. These two strains were included in the test for only two years and the differences in yield were not significant. Ogden yielded an average of 21.4 bushels for the six-year period. The average seed yield produced by Ogden was not significantly higher than yields produced by Gem, Dortchsoy 2, Burdette 13, and N45-2994.

Ogden produced a higher average seed yield than 11 of the 15 late midseason varieties. When grown as a late midseason variety, it produced an average yield of 17.4 bushels for the six years. Volstate, Roanoke, and Burdette 20 produced significantly higher average yields than Ogden.

None of the late varieties produced average seed yields comparable to the better late midseason varieties. Mamloxi, which was used as the standard in this group, produced an average yield of 12.2 bushels per acre, compared to 20.0 bushels per acre for Volstate for the six-year period. Because of the extreme drought in 1947 none of the late varieties produced seed in that year.

All varieties tested at the Cotton Branch Station were taller, lodged slightly more, and produced seed with a slightly higher oil content than at the Rice Branch Station.

Hay Yields

The average hay yields for 55 varieties are reported in Appendix Tables 9 and 10. Arksoy 2913 was the only variety grown throughout the entire period 1936 to 1948, so it was used as the standard in this experiment. It yielded 2.60 tons of hay for the 12-year period. None of the early varcities produced satisfactory hay yields. All varieties in the early midseason group that produced good yields of seed also produced satisfactory hay yields.

Delta Farm, Soudan

Soybean varietal experiments were conducted near Soudan in Lee County during the period 1936 to 1940 on land used as a substation of the Cotton Branch Station until the Clarkedale Substation was established. The soil type was Sharkey clay, a type quite common in the delta area of eastern Arkansas.

The average seed yields for the 17 varieties in this experiment are given in Appendix Table 12. Arksoy 2905 produced the highest average seed yield, or 17.4 bushels per acre for the five years. It was significantly higher in yield than 10 of the other varieties.

The average hay yields for the 17 varieties in this experiment are also given in Appendix Table 12. The highest average yields (more than 3 tons per acre) were produced by the late varieties Mamotan, Delsta 6676, and White Biloxi; however, several of the late midseason varieties produced good hay yields. Macoupin, an early variety, produced a very low yield, averaging 1.26 tons during a four-year period.

Delta Substation, Cotton Branch Experiment Station, Clarkedale

Soybean varietal experiments were conducted at the Delta Substation of the Cotton Branch Station at Clarkedale in 1940, and from 1942 to 1948. These experiments were conducted on a mixed sand and clay soil. That soil type is quite common in eastern Arkansas.

Seed Yields

The early midseason variety Ogden outyielded the early (S100) and late midseason (Volstate) varieties at Clarkedale with an average yield of 31.0 tons per acre (Table 3). However, yields of all three varieties were comparatively high. Seed of Volstate had the least protein and the most oil with the highest iodine value, but there was not much difference between Volstate and Ogden in seed characteristics.

Table 3. Performance of Three Standard Soybean Varieties, Delta Substation, Cotton Branch Experiment Station, Clarkedale, 1943-48, Together with Rainfall Data

Factor and variety		Mean	1943	1944	1945	1946[1]	1947	1948
Yield per acre								
S100	*Bushels*	25.6	15.9	.....[2]	38.3	.....[2]	26.4	22.0
Ogden	*Bushels*	31.0	17.9	45.2	46.8	26.0	23.9	26.5
Volstate	*Bushels*	27.6	12.9	32.0	40.6	32.2	24.0	23.6
Protein								
S100	*Per cent*	42.8	43.1	.....	43.1	.....	42.5	42.3
Ogden	*Per cent*	39.5	40.9	39.1	38.0	.....	38.5	40.8
Volstate	*Per cent*	37.6	38.2	38.0	38.1	.....	34.6	39.2
Oil								
S100	*Per cent*	19.6	19.1	.....	19.8	.....	19.8	18.8
Ogden	*Per cent*	20.8	20.7	21.2	21.6	.....	21.3	19.2
Volstate	*Per cent*	21.2	20.2	20.5	21.4	.....	23.6	20.1
Iodine value of oil								
S100	*Number*	126.1	124.4	.....	129.7	.....	124.3	133.2
Ogden	*Number*	134.3	133.2	133.9	136.5	.....	131.5	136.3
Volstate	*Number*	135.2	133.4	136.6	136.5	.....	133.6	135.9
Rainfall								
July	*Inches*	2.19	0.20	3.90	2.38	2.52	1.87	2.25
August	*Inches*	1.86	0.45	2.10	2.01	1.96	0.30	4.32

[1]No chemical data were received for 1946.
[2]S100 was not grown in 1944 and 1946.

The average seed yields for the 39 varieties in this test in 1940, 1942, 1943, and 1944 are given in Appendix Table 13. Arksoy 2913 was used as the standard variety. It yielded an average of 19.0 bushels per acre for the four years. All of the early varieties produced significantly lower seed yields than Arksoy 2913. The early midseason varieties Ogden, Delsoy, Ralsoy, and the Arksoy strains 2905 and 2908 produced slightly more than Arksoy 2913, and the late midseason varieties Volstate and Tennessee Non Pop each produced an average seed yield of 0.6 bushels per acre more than Arksoy 2913. None of the differences between these seven varieties and Arksoy 2913 was significant. All other late midseason and all late varieties were inferior to Arksoy 2913, although not all of the differences were significant.

The average grain yield and other data for the varieties in the uniform varietal experiment during the period 1943 to 1948 are given in Appendix Table 14. There were 6 varieties in the early group, 21 in the early midseason group, 15 in the late midseason group, and 14 in the late group. In these tests ammonium nitrate was applied at the rate of 150 pounds per acre before planting in 1943, and cyanamid was applied at the rate of 200 pounds

per acre before planting in 1944. No fertilizer was used during the other years.

The differences among the average seed yields of the varieties in the early group were small and none was significant. Patoka, with 42.9 per cent, had the highest per cent of protein but it was only slightly more than for S100. Both those varieties had higher protein content than the other varieties in this group. S100 had a lower oil content than the five other early varieties, averaging 19.6 per cent.

In the early midseason group Dortchsoy 2 produced an average seed yield of 0.8 bushel per acre more than Ogden, but the difference was not significant. The average seed yield produced by Ogden was significantly higher than yields of 16 varieties in this group. It produced 31.0 bushels per acre for the six-year period. Ogden produced seed with lower per cent of protein and higher per cent oil than other varieties except Dortchsoy 2. Ogden had a higher iodine number of the oil than all of the other varieties except N45-2885, N45-2994, and Armredo, being the same as Armredo.

Eleven of the varieties in the late midseason group were significantly inferior to Ogden in average seed yield. Dortchsoy 31 produced a slightly higher average yield than Ogden but the difference was not significant. Yields of Volstate, Roanoke, and N45-3563, while slightly less than Ogden, were not significantly different. Seed of Roanoke, Volstate, N45-3563, and Dortchsoy 31 had a slightly lower per cent of protein and a slightly higher per cent of oil than the seed of Ogden, which averaged 40.1 per cent protein and 20.8 per cent oil. Seed of Ogden had a lower per cent of protein and a higher per cent of oil than seed of the other varieties in this group.

In the late group Mamloxi produced a higher average yield of seed than all other varieties except Mamotan 6640. However, Mamloxi produced a six-year average yield of only 16.8 bushels per acre, as compared to an average yield of 29.2 bushels for Ogden for that same period. All varieties in the late group were also very low in per cent of oil, as compared with the better varieties in the midseason groups.

Hay Yields

Results for 39 varieties grown in the soybean hay test at Clarkedale are given in Appendix Table 13. The yields of the late varieties were high, 14 varieties averaging more than 3 tons of hay per acre. However, the yields of all varieties were higher than they were in the other tests in Arkansas. The better midseason varieties, such as Ogden, Arksoy, and Laredo, are better suited for hay production in the area than the late varieties because of time of maturity.

Mississippi County

Soybean varietal experiments were conducted in Mississippi County in 1943 and 1944. These experiments were on a fine sandy alluvial soil typical of parts of that area. Most of the varieties tested were early and early midseason, although three late midseason varieties were included. The two-year average seed yields, and the average seed quality, seed size, per cent of protein, per cent of oil, and iodine number of the oil are given in Appendix Table 15.

In the group of six early varieties, S100 produced the highest average yield, or 22.2 bushels per acre, and Boone the lowest. However, the differences were small and not significant. Seed of S100 had the highest per cent of protein (42.4 per cent) and lowest per cent of oil (19.9 per cent) of the varieties in the early group. Gibson and Patoka had the highest iodine number of oil and Macoupin the lowest.

In the early midseason group, Ogden produced the highest seed yield of the five varieties, averaging 34.2 bushels per acre. The other varieties in the group were significantly lower in seed yield than Ogden, averaging about the same as the early varieties. Ogden was lower than all other varieties except Mamredo in per cent of protein (averaging 39.6 per cent) and it had the highest per cent of oil and highest iodine number of the oil of all varieties in the group (averaging 21.4 and 133.9, respectively).

Volstate, with an average of 28.0 bushels per acre, produced significantly higher average seed yields than the other two late

midseason varieties. Volstate was second to Ogden in seed production, considering all the varieties in the test. It had the lowest per cent of protein (36.6) and the second highest per cent of oil (21.6) of all varieties. The iodine number of its oil was high but it was slightly lower than the value for Ogden and Monetta (which was 133.9).

Desha County

Varietal experiments with soybeans were conducted in Desha County during the period 1943 to 1948. These experiments were on a Portland fine sandy loam soil in the Arkansas River Valley. The tests were on different parts of the same field during the first five years and on a different field with a similar soil type in 1948. Other crops grown in the rotation, which varied somewhat from year to year, were cotton, corn, oats, lespedeza, and grain sorghum.

Most of the varieties grown in this experiment were in the early and late midseason groups. The early variety S100 was grown for two years and the results for it are included with the early midseason varieties. Mamloxi, a late variety, was also grown for two years and results for it are given with the late midseason varieties. There were 18 early midseason varieties and 15 late midseason varieties in this experiment. The average grain yields, plant height, seed quality, seed size, per cent of protein, per cent of oil, and iodine number of oil are given in Appendix Table 16. The chemical analysis of the seed was determined only during the first three years of the experiment.

There was very little rainfall during July and August in 1943 and 1947. All varieties produced very low yield those two years, but the later varieties suffered more than the earlier ones. The drought was so severe in 1947 that the late midseason varieties produced practically no seed so they were not harvested.

In the early midseason group Ogden exceeded Arksoy 2913 in seed yield each year except 1944. The average difference between the two varieties was significant. Ogden yielded an average of 18.8 bushels for the six-year period. The two Ogden selections Dortchsoy 2 and Hale 12 both produced slightly higher average seed yields than Ogden for the years they were in the experi-

ment but those differences were not significant. Ogden (with 40.3 per cent) had a lower protein content than all varieties except Mamredo, Armredo, and Rose Non Pop and it had a high per cent of oil (21.5). Delsoy and Armredo had a slightly higher iodine number of the oil than Ogden (which averaged 130.8) but all the other varieties in the early midseason group had lower iodine values than Ogden.

None of the varieties in the late midseason group produced significantly higher yields than Ogden, while eight were significantly lower. During the years when there was a severe drought late in the summer the later varieties produced yields lower than Ogden; when there was ample moisture during the summer the later varieties such as Volstate, Roanoke, and Dortchsoy 31 produced as good or better yields than did Ogden. Ogden seed had 41.4 per cent protein, 21.1 per cent oil, and 130.5 iodine value of the oil. Volstate and Roanoke produced seed with lower per cent of protein and higher per cent of oil than Ogden. Tokyo and P. I. 89775A also had lower per cent of protein than Ogden. The seed of Wood's Yellow and CNS had a lower iodine number of the oil than Ogden.

Miller County

Soybean varietal experiments were conducted in Miller County during the six years 1943 to 1948. These experiments were on a Miller fine sandy loam in 1943, 1944, 1945, and 1946 and on a mixed clay and sandy soil in 1947 and 1948. The experiments were on different farms each of the first four years. In 1947 and 1948 they were on adjoining fields of the same farm. The late midseason and late varieties were destroyed by livestock in 1943 and 1948. The results for these two years are not included in the averages. The rotation varied somewhat, but cotton and corn were the other crops occurring most commonly in rotation with the soybeans.

Volstate produced a slightly higher average yield than Ogden during the five-year period 1943-47 (Table 4) although Ogden had higher yields in three of the years when conditions were not as favorable. Ogden seed contained slightly more protein but the per cent of oil in the two varieties was identical.

Table 4. Performance of Two Standard Soybean Varieties, Miller County, 1943-47, Together with Rainfall Data

Factor and variety		Mean	1943	1944	1945	1946	1947
Yield per acre							
Ogden	*Bushels*	16.8	11.5	14.4	37.7	5.6	14.9
Volstate	*Bushels*	18.7	9.6	25.3	34.1	10.6	14.0
Protein							
Ogden	*Per cent*	39.3	39.7	38.5	44.5	31.3	42.5
Volstate	*Per cent*	37.4	37.5	35.6	40.9	30.4	42.7
Oil							
Ogden	*Per cent*	21.9	19.1	24.6	20.4	24.3	21.2
Volstate	*Per cent*	21.9	21.2	23.3	20.2	25.0	20.0
Iodine value of oil							
Ogden	*Number*	132.9	128.7	130.0	134.3	139.1	127.2
Volstate	*Number*	133.3	132.9	129.3	136.3	138.7	129.4
Rainfall							
July	*Inches*	3.50	0.52	1.88	6.62	8.33	0.14
August	*Inches*	4.49	0.07	5.95	4.84	1.17	10.41

There were 17 early midseason varieties, 15 late midseason varieties, and 16 late varieties tested in this experiment. Rainfall was deficient during the summers of 1943 and 1947, and in 1946 rainfall was excessive early in the season so the seed yields were low those years. During the other years this experiment was conducted the rainfall was fairly well distributed for seed production. The average seed yields, plant height, lodging, seed quality, seed size, per cent of protein, per cent of oil, and iodine number of the oil are given in Appendix Table 17.

Hale 12 produced a significantly higher yield than Ogden but all other varieties in the early midseason group were exceeded in yield by Ogden, the difference being significant in all cases but one. Seven of the varieties exceeded Ogden in per cent of protein. Dortchsoy 2, which had an average of 0.2 per cent more oil than Ogden, was the only variety to exceed it in oil content. Hale 12, N45-2885, and N45-2994 were the only varieties in the early midseason group with a higher iodine number of the oil than Ogden.

Volstate and Roanoke, in the late midseason group, produced significantly higher average seed yields than Ogden. Dortchsoy 31 yielded significantly more than Ogden the one year it was tested. None of the other varieties in this group produced seed yields as high as Volstate and Roanoke, although Wood's Yellow, Tokyo, Burdette 20, and N45-3563 produced slightly higher yields

than Ogden. Volstate and Roanoke were lower in per cent of protein (37.4 and 36.6 per cent, respectively) and higher in per cent of oil (21.9 and 22.6 per cent, respectively) than all other varieties in this group. Tanner had the highest iodine number of all varieties in this group, with a value of 136.8.

The varieties in the late group produced lower yields than the best varieties in the late midseason group. Mamotan 6640 and Mamloxi produced the highest yields of the varieties grown four years, averaging 16.8 and 16.2 bushels per acre, respectively. Compared with Mamloxi, the Yelnando and Louisiana Green varieties made satisfactory yields the two years they were tested. All varieties in the late group were inferior to Volstate and Roanoke in per cent of oil in the seed.

Fruit and Truck Branch Experiment Station, Hope

Varietal experiments were conducted at the Fruit and Truck Branch Experiment Station, Hope, during the period 1936 to 1948. Both seed and hay yields were obtained. The experiments were on Ruston fine sandy loam soil. The rotation was cotton followed by vetch, soybeans, and corn, followed by winter oats that were overseeded with lespedeza.

Seed Yields

The average seed yields for the 30 varieties in this experiment are given in Appendix Table 18. The average yields of all varieties were low, Arksoy giving an average of 10.1 bushels the 13 years it was grown. In those years when rainfall was deficient during the late summer the yields were extremely low. The early midseason varieties such as Arksoy and Ogden produced some seed even in the driest years. Later varieties such as Otootan and Mamloxi did not produce seed in the years when there was a severe drought in August and September. Ogden produced an average yield of 13.3 bushels for the eight years tested, which was significantly higher than Arksoy. S100, Volstate, Ralsoy, Arkan, and Ozark produced higher average yields than Arksoy but the differences were small and not significant. All other varieties in the test produced lower average yields than Arksoy.

Hay Yields

The average hay yields are also given in Appendix Table 18. Hay yields were comparatively good. Many of the later maturing varieties produced higher yields than Arksoy, which yielded an average of 1.84 tons. Ogden produced an average hay yield of 2.07 tons, so it is well suited for hay as well as seed production in this area.

Livestock and Forestry Branch Experiment Station, Batesville

Eight varieties of soybeans were tested on Linside loam soil at the Livestock and Forestry Branch Station, Batesville, during the four years 1942 to 1945. Seed yields were obtained each year and hay yields for three of the years. The average seed and hay yields are given in Appendix Table 19.

Yields of both seed and hay were low, averaging less than 9 bushels of seed and about 1 ton of hay per acre, and the differences between varieties were small. The results indicate that Ogden, Volstate, and Arksoy are the best adapted for the area.

Discussion

The results of the varietal experiments with soybeans conducted in Arkansas demonstrate that (1) a few varieties are well adapted throughout the state, (2) other varieties are limited in their range of adaptation, and (3) still other varieties are definitely inferior to the best varieties in all parts of the state.

The Ogden variety, and its selections Dortchsoy 2 and Hale 12, performed satisfactorily in all of the experiments. Ogden produces high yields, the chemical composition of the seed is good for oil production, and it matures at a season that fits many of the different crop rotation and farm management systems used. The objection to this variety is its poor seed-holding ability after the seed is ripe. Shattering is a serious objection, especially in years when the rainfall is deficient and the day temperature is high during and after the time of ripening. Shattering is not serious when rainfall is adequate and temperatures at that critical time are at or slightly below normal.

The Arksoy variety and its selections 2905, 2908, 2913, 2914, Ralsoy, Dortchsoy 7, Gem, Kilpatrick 10, etc., are also well adapted in Arkansas. Arksoy usually produces slightly less seed and has a lower per cent of oil in the seeds than Ogden. Arksoy, however, does not shatter as badly as Ogden, although it too will shatter seriously under adverse conditions.

Some examples of varieties adapted for parts of the state or for special uses are S100, Volstate, Roanoke, and Tanner.

S100 produces somewhat less than Ogden but it can be used where a short-season variety is needed to make better use of machinery or to fit a special rotation.

Volstate and Roanoke (a similar variety) are fairly well adapted in the southern part of the state. Their performance has not been as good as Ogden in the northern part of the state and in the Delta. In some years they yielded satisfactorily in those areas but because of their later maturity harvest is often difficult. Volstate and Roanoke produce better than Ogden in the southern part of the state during years of well distributed rainfall. In two out of the six years they suffered seriously from late summer drought in Miller and Desha counties.

Tanner performed quite well at Stuttgart and very poorly at some of the other stations. This variety is too late for Fayetteville. It makes a rank growth and lodges seriously at Clarkedale and at the other stations where soil is very fertile. The rank growth and lodging probably cause a shading of the branches on the under side of the plants which results in a poor seed set. This is also true of all the viney type varieties on the rich alluvial soils. At Stuttgart the Tanner variety makes only a moderate growth and lodging is not severe, so the seed set is good. Tanner is low in oil and has a colored seed coat so is not desirable as an oil bean.

Extremely early and very late varieties have not performed satisfactorily in any of the soybean varietal experiments in Arkansas.

The early varieties such as Lincoln, Boone, Chief, Gibson, Macoupin, and Patoka have not performed satisfactorily. These varieties do not yield as well as later varieties, the seed is usually

of low quality, and the seed shatters seriously. These varieties usually do not make enough growth to control grass and weeds by shading. That fact limits the usefulness of the crop as soybeans are often included in a rotation to control weed pests. The weeds and grass will also interfere with the harvest of the soybeans.

Late varieties, examples of which are Mamloxi, Acadian, Louisiana Green, and Mamotan, are not adapted in the state. These late varieties will usually mature in the southern part of the state but maturity is so late that fall rains often make the harvest difficult. The yield and oil content of late varieties is less than for the better midseason varieties.

The annual and average yields and per cent of protein and oil and iodine number of the oil for three varieties which were grown at four locations during the period 1943 to 1948, together with the annual July and August rainfall, have been given in Tables 1 through 4. These data show the wide variation in yield and chemical composition produced by the same variety under different environmental conditions.

The yields at all stations were average or above for the years 1944, 1945, and 1948. The rainfall during those years was ample and well distributed. In 1943 the rainfall was deficient and yields were low at all stations. In 1946 the rainfall was unevenly distributed so most varieties suffered from drought at all stations, although there was less reduction in yield at Clarkedale than at the other stations. Another factor that influenced the yields in 1946 in the Miller County test was the excessive rainfall in the spring that delayed planting and caused weed and grass competition to be serious. In 1947 rainfall was not ample and the yields were low. The experiment at Stuttgart was irrigated that year which increased the yields over what could have been expcted from the very low rainfall during July and August. The rainfall was ample in 1948 but the yields were reduced at Clarkedale because of extremely late planting.

The experiments were conducted so that the soil, cultural methods, and other conditions which affect yields were as nearly similar from year to year as possible. However, there was a year-

to-year divergence in yield and chemical composition for the same variety at the same location. As an example of this wide variation in yield, at Fayetteville, the S100 variety produced an average yield of 6.4 bushels per acre in 1943 and 21.7 bushels per acre in 1948, a difference of 15.3 bushels. The same comparison with Ogden at Fayetteville shows average yields of 7.8 bushels in 1943 and 26.0 bushels in 1945. High and low yields for Volstate at Fayetteville were 3.7 bushels in 1943 and 28.3 bushels in 1945, a difference of 24.6 bushels per acre. The yields at the other stations show similar differences. Summer rainfall appears to be the main cause of this inter-year difference in yield, as pointed out by McClelland (7).

A comparison of the chemical composition of the three varieties at the four stations (Tables 1 to 4) shows that the performance of a variety at one location is indicative of its relative composition when grown under different conditions. There are exceptions to this in varieties that are similar in composition. Ogden had a higher average oil content than Volstate when grown at Fayetteville but Volstate had the higher oil content when grown at Stuttgart and Clarkedale. There is, however, as wide a range of variation between those varieties for different years at the same station, as in the mean values of several years between different stations.

The environment also influenced the composition of the seed. The per cent of protein was high and the per cent of oil was low at all stations in 1943 when there was little rainfall in July and August. This is in agreement with the results reported by Cartter and Hopper (2). The per cent of oil was low for the three varieties at Clarkedale in 1948 when all were planted July 5, which was about six weeks later than the average. The results for Ogden and Volstate in the Miller County test in 1946, when planting was delayed only until June 13, were just the opposite. In that test the two varieties had extremely high oil content and very low protein. However, in the 1946 Miller County test there was serious competition from grass and deficient rainfall in late summer. This high oil and low protein of the Miller County seed in 1946 is contrary to the usual results and must have been due to unknown causes.

The soil at Stuttgart has received high applications of lime during the past 40 years since it has been cropped to rice over half of those years and been irrigated with well water of high lime content. Kapp (6) reported that this irrigation water contained about 75 ppm. of lime and was equivalent to an application of about 825 pounds per acre of lime or a total of over ten tons per acre for the entire period the land was cropped. Cartter and Hopper (2) report that Lipman, Jacob, and Blair (1916) and Fellers (1918) found that increases in protein resulted from applications of lime. This application of lime to the soil might have been one of the contributing factors to the comparatively high protein content of the seed produced at Stuttgart.

The iodine number of the oil increased from the earliest to the latest variety. The iodine values were also slightly higher at Fayetteville and Clarkedale than they were at the more southern tests in Stuttgart and Miller County. The iodine value for S100 was comparatively low for the Clarkedale seed.

The use of soybeans for hay has declined in recent years but the practice is still followed to some extent. The varieties that are best adapted for seed production also produced good forage yields. It would seem advisable to use those varieties for hay. Then, in the event that the crop was harvested for seed rather than for hay, the seed would not be discounted on the oil seed market because of its chemical composition. Varieties such as Ogden, Arksoy, and Volstate should be planted thicker where the crop is to be harvested for hay. This improves the quality of the hay by reducing the size of the stems.

DISEASE CONTROL STUDIES

Seed Treatments

The increase in soybean acreage in the state has been accompanied by an increase in the severity of soybean diseases. One important phase of the disease studies was to determine the efficacy of seed disinfectants in the control of seed- and soil-borne seedling diseases.

Consequently experiments were conducted from 1943 to 1947 at different locations in the state to determine the effect of various seed treatments on stands and yields of soybeans. When more than one variety was tested the split-plot experimental design was employed, using varieties for whole-plot comparisons and seed treatments for split-plot comparisons. When only one variety was tested the randomized block design was used. Each plot, unless specified, consisted of one rod row and each treatment was replicated four times. Unless otherwise specified the planting rate was approximately one seed per inch of row. The stand and yield figures presented in the tables are averages of four replications.

During the 1943-45 seasons, the effect of New Improved Ceresan, Spergon, and Arasan on stands and yields of Macoupin and Arksoy varieties was tested. The results (Table 5) show that significant increases in stands were generally obtained from all the seed treatments. These increases in stands, however, were not accompanied by significant increases in yields. These results would indicate that when good quality seed is planted at the rate employed, little or no increase in yield can be expected from seed treatment. This conclusion is further substantiated by the results of another experiment conducted in 1945 in which the effect of Spergon on the stand and yield of Arksoy soybeans planted at the rates of 10, 20, 30, 40, and 50 pounds of seed per acre was studied. The results of this experiment (Table 6) show that the stands were increased by seed treatment. The yields, however, were increased only at the 10, 20, and 30 pound rates of seeding.

In 1946 experiments were conducted on the effect of seed treatments on the stand and yield of different soybean varieties planted at various dates. At Fayetteville, the effect of Spergon,

Table 5. Effect of Seed Treatment on Stands and Yields of Macoupin and Arksoy Soybeans, Stuttgart and Marianna, 1943-45

Note: In 1943 and 1944, soybeans were planted in 2-rod rows; in 1945 they were planted in 1-rod rows.

Year and location	Variety	Seed treatment: None	Arasan[1]	New Improved Ceresan[1]	Spergon[2]
		Stand counts			
1943—Stuttgart	Macoupin	219	347[3]	405[3]	387[3]
—Stuttgart	Arksoy	164	335[3]	355[3]	355[3]
1944—Stuttgart	Macoupin	283	310[3]	365[3]	336[3]
—Stuttgart	Arksoy	345	333	348	339
—Marianna	Arksoy	108	161[3]	170[3]	169[3]
1945—Stuttgart	Arksoy	54	67[3]	69[3]	74[3]
—Marianna	Arksoy	31	42	67[3]	32
Means		172.0	227.8	254.1	241.7
		Bushels per acre			
1943—Stuttgart	Macoupin	8	10	10	9
—Stuttgart	Arksoy	15	16	15	15
1944—Stuttgart	Macoupin	28	31	36	32
—Stuttgart	Arksoy	52	50	52	48
—Marianna	Arksoy	34	31	32	33
1945—Stuttgart	Arksoy	25	32	33	30
—Marianna	Arksoy	23	23	28	22
Means		26.5	27.5	29.4	27.0

[1]Arasan and New Improved Ceresan applied at a rate of 1 oz. per bushel.
[2]Spergon was applied at a rate of 2 oz. per bushel.
[3]Difference significant at the 1 per cent level.

Table 6. Effect of Seed Treatment on Stands and Yields of Arksoy Soybeans Planted at Five Rates, Stuttgart, 1945

Treatments	Seeding rates in pounds per acre: 10	20	30	40	50	Mean
			Stand Counts			
Spergon	13	29	46	57	70	43.0[1]
None	11	24	33	42	65	35.0
			Bushels per acre			
Spergon	12	21	25	22	26	21.2[1]
None	8	16	20	22	27	18.6

[1]Significant at 5 per cent level.

Arasan, and New Improved Ceresan, alone and in various combinations, on the stand of Arksoy when planted at two dates was studied. The results (Table 7) show that all treatments increased the stands planted on May 21, but not the stands planted on April 26. Combining treatments did not increase the stands over the individual treatments. As a result of drought, yield results were not obtained in the experiment. An additional experiment was conducted in 1946 at Stuttgart on the effect of Arasan on the

Table 7. Effect of Seed Treatment on Stands of Arksoy Soybeans Planted at Two Dates, Fayetteville, 1946

Treatment and rate per bushel	Seed planted April 26	Seed planted May 21
	Stand counts	
None	91	41
Spergon: 2 oz.	112	72[1]
Arasan: 2 oz.	108	71[1]
New Improved Ceresan: 1 oz.	98	62[2]
Arasan: ½ oz. *and* Spergon: 1 oz.	102	66[1]
New Improved Ceresan: ½ oz. *and* Spergon: 1 oz.	104	74[1]
New Improved Ceresan: ½ oz. *and* Arasan: ½ oz.	93	69[1]
New Improved Ceresan: ½ oz., Arasan: 1 oz., *and* Spergon: 1 oz.	100	69[1]

[1]Difference significant at 1 per cent level.
[2]Difference significant at 5 per cent level.

Table 8. Effect of Seed Treatment with Arasan on Stands and Yields of Four Varieties of Soybeans Planted at Two Dates, Stuttgart, 1946

Note: Arasan was applied at a rate of 1 oz. per bushel.

Variety	Planting dates and treatment			
	April 22		May 13	
	None	Arasan	None	Arasan
	Stand counts			
S100	170	210	208	246
Arksoy 2913	136	184	203	213
Ogden	108	146	150	167
Volstate	143	176	166	194
Means	189.2	179[1]	181.7	205[1]
	Bushels per acre			
S100	17	17	11	12
Arksoy 2913	14	15	12	13
Ogden	14	15	12	12
Volstate	18	16	15	14
Means	15.7	15.7	12.5	12.7

[1]Difference significant at 1 per cent level.

stands and yields of four varieties planted at two dates. The results (Table 8) show that treatment with Arasan increased the stands of all the varieties at both dates of planting. The yields were not increased by seed treatment.

In 1947, five varieties were treated with Arasan and Arasan SF and planted at three dates. The results (Table 9) show that both treatments gave significant increases in stand of S100, Ogden, and Roanoke at all dates of planting. Significant increases in stand were also obtained by both seed treatments with Lincoln at the April and May dates of planting and with Ralsoy at the May and June dates of planting. Arasan and Arasan SF were equally effective in increasing stands.

Table 9. Effect of Seed Treatment on Stands of Five Varieties of Soybeans Planted at Three Dates, Stuttgart, 1947

Note: Arasan was applied at a rate of 1 oz. per bushel, and Arasan S. F. at a rate of 1½ lbs. per gallon of water.

Variety	Planting date	Seed treatment		
		None	Arasan	Arasan S. F.
		Stand counts[1]		
Lincoln	April 23	11	33[2]	37[2]
	May 19	4	17[2]	16[2]
	June 9	6	12	11
S100	April 23	74	87[2]	88[2]
	May 19	65	76[2]	82[2]
	June 9	59	73[2]	68[2]
Ralsoy	April 23	90	87	91
	May 19	68	83[2]	84[2]
	June 9	61	74[2]	72[2]
Ogden	April 23	68	87[2]	87[2]
	May 19	59	75[2]	75[2]
	June 9	40	73[2]	66[2]
Roanoke	April 23	73	88[2]	87[2]
	May 19	48	68[2]	70[2]
	June 9	50	78[2]	74[2]

[1]Seed planted at the rate of 100 seeds per row.
[2]Difference significant at 1 per cent level.

The question of the compatibility of seed treatment with seed inoculation often arises. In 1945 an experiment (Cooperative Southern Soybean Seed Treatment Test) was conducted at Stuttgart on the effect of various seed treatments on stand and yield of inoculated and uninoculated Ogden soybeans. The seed was treated with the disinfectants and the inoculum was added to the seed just before planting. The land on which this test was conducted had grown soybeans in 1943 and rice in 1944. The soybeans previously grown on this land had been inoculated. There was no significant difference between the mean stands and yields of the inoculated and uninoculated lots of seed (Table 10).

Recent work by Vlitos and Preston (10) on legume seed treatment indicates that nodulation is often enhanced rather than retarded when the seed is treated with disinfectants, such as Arasan, Spergon, and Phygon. Also, Johnson and Koehler (5)

Table 10. Effect of Seed Treatments on Stands and Yields of Inoculated and Uninoculated Ogden Soybeans, Stuttgart, 1945

Treatment and rate per bu.	Stand		Yield	
	Inoculated	Uninoculated	Inoculated	Uninoculated
	Stand counts		*Bushels per acre*	
None	52	47	35	32
New Improved Ceresan—½ oz.	70	67	37	33
New Improved Ceresan—1 oz.	67	76	34	36
Arasan— 1 oz.	67	61	32	30
Arasan— 2 oz.	61	65	34	34
Spergon— 2 oz.	75	71	31	30
Spergon— 3 oz.	83	81	38	38
Semesan, Jr.— 2 oz.	67	65	29	31
Means	67.75	66.62	33.75	33.00

state that "the use of certain disinfectants seems to be no deterrent to successful inoculation of the seed and subsequent nodulation." When both seed treatment and inoculation are used, the seed should be treated first and the inoculum should be applied in dry form just prior to planting (10).

The results of the tests on soybean seed treatment, as a whole, show that a number of disinfectants, namely Arasan, Arasan SF, Spergon, and New Improved Ceresan, gave significant increases in stand regardless of the date of planting. Increases in stands, however, were not ordinarily accompanied by increases in yield when the planting rate was approximately 50 pounds of seed per acre. These results are in agreement with previously published information (1, 4). It would seem that seed treatment would permit a slight reduction in rate of planting where high rates of

good-quality seed are used. Seed treatment is recommended when poor quality seed with low germinability is planted.

Leaf Diseases

The most common leaf diseases on soybeans in Arkansas are bacterial pustule (*Xanthomonas phaseoli* var. *sojense* [Hedges] Starr and Burkholder), bacterial blight (*Pseudomonas glycinea* [Coerper] Stapp), wildfire (*Pseudomonas tabaci* [Wolf and Foster] Stapp), frogeye (*Cercospora sojina* Hara), and brown spot (*Septoria glycines* Hermmi).

The principal control measures suggested for leaf diseases are practicing crop rotation and planting resistant varieties. Most of these parasitic organisms causing leaf diseases overwinter on diseased leaves. Therefore, rotations in which non-susceptible crops are grown for one and preferably two or more years will reduce the severity of the diseases. It has been observed that the effectiveness of rotation is correlated with the length of the rotation.

Whenever available, resistant varieties should be grown. The results of observations on the resistance of soybean varieties to

Table 11. Reaction of Soybean Varieties to "Bacterial Pustule-Blight Complex" and Wildfire

Variety	Bacterial pustule-blight complex	Wildfire	Variety	Bacterial pustule-blight complex	Wildfire
	Rating[1]			*Rating*[1]	
Acadian	3	3	Lincoln	4	2
Arksoy 2913	4	3	Macoupin	2	2
Boone	3	2	Mamloxi	3	4
Burdette 19	3	3	Mamotan 6640	3	2
Cherokee	1	1	Ogden	1	1
Chief	2	2	Otootan	2	.[2]
CNS	1	1	Palmetto	1	1
Delsta	2	1	Patoka	2	2
Dortchsoy 2	1	1	Ralsoy	3	2
Dortchsoy 7	4	4	Roanoke	2	3
Dortchsoy 31	2	4	S100	3	3
Gatan	3	2	Seminole	3	2
Gibson	3	4	Tanner	3	2
Hale 12	1	2	Volstate	2	2
La. Green	1	1	Wood's Yellow	2	2
Laredo	2	.[2]	Yelnando	2	4

[1]Ratings were made as follows:
1. Light infection;
2. Moderate infection;
3. Severe infection;
4. Very severe infection.

[2]No observations.

bacterial pustule, bacterial blight, and wildfire are presented in Table 11. The symptoms of bacterial pustule and bacterial blight are very similar, especially during the latter part of the growing season, and they are rated as "bacteria pustule-blight complex." The varieties which are rated as the most resistant to the bacterial pustule-blight complex are: Ogden, Dortchsoy 2, Hale 12, Palmetto, CNS, Cherokee, and Louisiana Green. Wildfire is a comparatively new disease in the state and apparently is increasing in importance. The varieties which are rated as the most resistant to wildfire are: Ogden, Dortchsoy 2, Palmetto, CNS, Cherokee, Louisiana Green, and probably Hale 12. In general, the varieties which are the most resistant to the bacterial pustule-blight complex are also the most resistant to wildfire. These results are in general agreement with the data presented by Weimer (11) on the resistance of soybean varieties to these diseases in other southern states.

The severity of frogeye and brown spot varies considerably from year to year. The fungus causing frogeye overwinters on diseased plants and also may be carried to new fields by infected seed. The most severe damage from frogeye has been observed on medium to late maturing varieties such as Tanner, Otootan, Gatan, Laredo, Mammoth Yellow, and Ogden. Little information is available on the resistance of soybean varieties to brown spot. Rotation is suggested for the control of brown spot since the most severe injury from this disease has been observed where soybeans were grown for two or more years in succession on the same land.

The following diseases also have been observed to cause losses in varying degrees on soybeans: mosaic (virus), downy mildew (*Peronospora Manshurica* [Naum] Syd.), anthracnose (*Glomerella glycines* [Hori] Lehman and Wolf), pod and stem blight (*Diaporthe phaseolorum* var. *sojae* [Lehm.] Wehmeyer), southern blight (*Sclerotium rolfsii* Sacc.), and charcoal rot (*Macrophomina phaseoli* [Maubl.] Ashby). Information on varietal resistance is not sufficient at the present time to warrant recommending the use of any particular varieties for the control of these diseases. The use of disease-free seed and of rotation will reduce losses to some extent. Also, seed treatment is of value in reducing losses caused by downy mildew and anthracnose.

SUMMARY

Yields of seed and hay and other agronomic data for soybeans tested at ten places in Arkansas from 1936 to 1948, and data on the chemical composition of the seed from seven of those tests during the last six years of that period are presented. Results of seed treatment tests for the control of seedling diseases and observations on leaf diseases are also included.

The results of those experiments lead to the following conclusions:

(1) S100 is the only early variety adapted to Arkansas and it should be used only for a part of the crop to extend the harvest period and for special rotations where early maturity is desired.

(2) The early midseason varieties Ogden and Arksoy, including the numerous selections of those varieties, are adapted throughout the state. In general Ogden was found to be slightly superior to Arksoy in seed yield and oil content.

(3) The late midseason varieties Volstate and Roanoke are adapted in the southern part of the state. In most years these varieties produce high seed yields and high oil content in that area, although yields are reduced in years when there is a late summer drought. The Tanner variety produces good seed yield in the rice area.

(4) None of the late varieties are well adapted as none produce as good seed yields or seed with as high oil content as do the best varieties in the midseason groups.

(5) The midseason varieties that produce good seed yields also produce satisfactory yields of hay. The Tanner, Laredo, and Otootan varieties are also well adapted for hay production.

(6) The chemical composition of the seed of a variety varies widely, being influenced by rainfall, temperature, and type and fertility level of the soil.

(7) Seed treatment with Arasan, Arasan SF, and Spergon gave significant increases in stands at early, medium, and late dates of planting. Seed treatments, however, did not increase the yields when the seed was planted at the rate of 50 pounds per acre. Farmers who plant high quality seed at rates of 45 to 50 pounds per acre might reduce the rate of planting slightly by treating the seed. Seed treatment is recommended when poor quality seed with low germinability is planted.

(8) Seed treatment with certain compounds such as Arasan and Spergon appears to be sufficiently compatable with seed inoculation to give good root nodulation under ordinary crop rotation systems when soybeans have been used previously in the rotation. The inoculum in a dry form should be added to the treated seed just prior to planting. When soybeans are planted on land for the first time, seed treatment is not recommended, pending more complete information on the compatability of seed disinfectants and inoculation. Treated seed should be used for planting only, and destroyed if not planted.

(9) Control measures recommended for the major soybean diseases are crop rotation and the use of resistant varieties. Ogden, Dortchsoy 2, and a few other named varieties have shown resistance to the bacterial pustule and wildfire leaf diseases.

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Appendix

Appendix Table 1: Average Seed and Hay Yields Main Agricultural Experiment Station, Fayetteville, 1936-48

Variety	Seed yields[1]			Hay yields		
	Yield per acre[2]	L.S.D. 5%[3]	Years tested	Yield per acre[2]	L.S.D. 5%[3]	Years tested
	Bushels	*Bushels*	*Number*	*Tons*	*Tons*	*Number*
Arksoy	11.4	....	9	1.69	.....	12
Amherst	7.8(10.5)	1.5	6	1.56(1.72)	0.21	6
Arkan	10.8(13.4)	2.3	3	1.35(1.84)	0.32	4
Arksoy (2905)	12.4(13.4)	2.3	3	1.50(1.72)	0.22	3
Arksoy (2908)	12.4(13.4)	2.3	3	1.58(1.72)	0.22	3
Arlington	9.2(11.2)	1.3	7	2.01(1.76)	0.19	7
Barchet	2.8(12.3)	3.2	2	1.27(1.58)	0.26	2
Biloxi	2.7(9.5)	1.6	5	1.49(1.65)	0.18	7
Boone	.....	....	..	0.78(1.58)	0.26	2
Chief	.....	..	.	0.90(1.58)	0.26	2
Chiquito	6.6(10.5)	1.5	6	1.48(1.72)	0.21	6
Clemson	.....	....	..	1.45(1.60)	0.26	5
Cloud	7.2(9.5)	1.6	5	1.47(1.68)	0.23	5
Delaware (1838)	7.1(10.5)	1.5	6	1.75(1.72)	0.21	6
Delaware (1846)	9.6(10.5)	1.5	6	2.08(1.72)	0.21	6
Delnoshot (6679)	5.3(9.5)	1.6	5	1.29(1.68)	0.23	5
Delsoy	.....	..	.	1.67(1.58)	0.26	2
Delsta (6676)	4.6(5.8)	1.5	6	1.37(1.60)	0.19	7
Delsta (6677)	5.7(10.5)	1.5	6	1.38(1.72)	0.21	6
Easycook	12.4(13.9)	2.0	4	1.88(1.66)	0.20	6
Gatan	.....	.	..	2.06(1.31)	0.23	2
George Washington	8.1(10.5)	1.5	6	1.48(1.72)	0.21	6
Georgian	3.4(12.3)	3.2	2	1.70(1.79)	0.41	3
Gibson	.....	....	..	0.96(1.58)	0.26	2
Hardinsoy	6.1(9.5)	1.6	5	1.32(1.68)	0.23	5
Herman	7.6(12.3)	3.2	2	1.38(1.58)	0.26	2
Jet	9.1(11.2)	1.3	7	1.85(1.76)	0.19	7
Laredo	9.2(11.4)	1.3	9	1.79(1.69)	0.15	12
Looney 3	11.3(14.8)	1.9	5	2.24(1.97)	0.27	6
Macoupin	.....	....	..	1.49(1.58)	0.26	2
Magnolia	.....	...	.	1.10(1.26)	0.56	2
Mamloxi	7.7(10.2)	1.2	8	1.68(1.83)	0.17	8
Mammoth Yellow	6.0(9.5)	1.6	5	1.75(1.68)	0.23	5
Mamredo (607)	8.8(11.4)	1.3	9	1.38(1.64)	0.16	11
Manchu	8.0(10.5)	1.5	6	1.31(1.72)	0.21	6
Meyer	10.5(11.2)	1.3	7	1.84(1.76)	0.19	7
Mikado	7.4(9.5)	1.6	5	1.85(1.68)	0.23	5
Mingo	4.0(12.3)	3.2	2	.....	.....	..
Missoy	.....	...	..	1.92(1.26)	0.56	2
Monetta	.....	..	.	1.59(1.42)	0.31	4
Morse	6.2(9.5)	1.6	5	1.41(1.68)	0.23	5
Nanda	6.7(12.3)	3.2	2	1.25(1.58)	0.26	2
Ogden	16.6(14.8)	1.9	5	2.32(1.80)	0.21	8
Old Dominion	8.0(10.5)	1.5	6	1.52(1.72)	0.21	6
Otootan	1.3(10.9)	1.4	8	2.02(1.80)	0.17	10
Ozark (37272)	10.1(10.2)	1.2	8	1.68(1.76)	0.19	7
Palmetto	.....	...	..	1.54(1.60)	0.40	3
Patoka	.....	....	..	0.84(1.58)	0.26	2
Peking	6.5(9.5)	1.6	5	1.43(1.68)	0.23	5
Pinedell	8.9(11.2)	1.5	7	1.67(1.76)	0.19	7
Ransey	15.0(13.9)	2.0	4	1.77(1.85)	0.27	5
S100	.....	....	..	1.33(1.31)	0.23	2
Sable	6.9(9.5)	1.6	5	1.46(1.68)	0.23	5
Scioto	4.1(12.3)	3.2	2	1.32(1.58)	0.26	2
Semmole	.....	.	.	1.61(1.79)	0.41	3
Shanghai	9.2(11.2)	1.3	7	2.01(1.76)	0.19	7
Southern Prolific	9.7(11.2)	1.3	7	1.89(1.76)	0.19	7
Tanloxi	3.7(9.5)	1.6	5	1.70(1.68)	0.23	5
Tanner	10.5(14.8)	1.9	5	2.10(1.80)	0.21	8
Tenn. Non Pop	.....	...	.	1.58(1.58)	0.26	2
Tokyo	4.4(7.2)	1.6	4	1.53(1.46)	0.18	4
Virginia	3.9(12.0)	1.6	7	.....	.....	..
Volstate	15.2(14.8)	1.9	5	2.21(1.80)	0.21	8
White Biloxi	3.2(9.5)	1.6	5	1.22(1.68)	0.23	5
Wood's Yellow	.....	....	..	2.04(1.79)	0.41	3

[1]Seed yields are for the period 1936-44.
[2]Numbers in parantheses following yields for each variety are yields of Arksoy 37335, when grown during the same years.
[3]Lenst significant difference at 5 per cent level.

Appendix Table 2: Average Seed and Hay Yields, Main Agricultural Experiment Station, Fayetteville, 1936-42

P. I. Number	Yields per acre	
	Seed	Hay
	Bushels	*Tons*
Varieties grown 1936-1940		
37335 (Arksoy)	9.5	1.68
30598	7.4[1]	1.47
36904	5.2[1]	1.72
36906-A-7-5-1	4.4[1]	1.25[1]
36906-A-7-10-2	9.3	1.49
36915	5.4[1]	1.14[1]
37239	5.4[1]	1.57
37262	7.1[1]	1.51
37301	....	1.44[1]
38455	6.8[1]	1.55
60261	....	1.50
60264	5.5[1]	1.33[1]
Difference required for significance, 5 per cent level	1.6	0.23
Varieties grown 1936-1941		
37335 (Arksoy)	10.5	1.72
30596	8.4[1]	1.40[1]
30745	7.5[1]	1.53
35623	8.2[1]	1.93[2]
36847	8.4[1]	1.52
36901	8.2[1]	1.43[1]
36906-A-7-10	7.4[1]	1.70
37245	9.2	1.75
38451	7.9[1]	1.70
54610-2	8.2[1]	1.31[1]
60266	7.5[1]	1.37[1]
61012	8.1[1]	1.86
61948	8.2[1]	1.66
62203	8.0[1]	1.43[1]
62839	5.7[1]	1.45[1]
Difference required for significance, 5 per cent level	1.5	0.21
Varieties grown 1936-1942		
37335 (Arksoy)	11.2	1.76
36576	9.6[1]	1.76
36906-A-7-12-B	9.8[1]	1.57[1]
37254	9.7[1]	1.72
37344	9.8[1]	1.93
38218	9.2[1]	1.96[2]
38462	9.4[1]	1.99[2]
40115	9.4[1]	1.91
40660	8.4[1]	1.85
60212	10.0	1.89
60263	9.5[1]	1.83
Difference required for significance, 5 per cent level	1.3	0.19

[1]Yields significantly lower than the standard variety.
[2]Yields significantly higher than the standard variety.

Appendix Table 3. Agronomic And Chemical Data, Main Agricultural Experiment Station, Fayetteville, 1943-48

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Early[1]									
S100	12.5	.....	.....	2.2	3150	45.5	18.7	127.6	6
Boone	7.3(10.7)	1.8	.....	3.2(1.5)	3463(3240)	46.1(45.0)	18.8(18.2)	114.1(126.8)	2
C463	12.1(14.3)	2.6	.....	2.6(2.1)	3024(2945)	42.4(45.8)	21.4(19.0)	119.4(129.0)	2
Cass	13.2(14.3)	2.6		2.6(2.1)	2668(2947)	42.3(45.8)	22.2(19.0)	121.8(129.0)	2
Chief	10.8(14.4)	2.0		2.8(1.7)	2853(3167)	43.8(45.1)	20.1(18.7)	123.4(129.5)	2
Gibson	8.8(11.8)	1.4		2.6(2.2)	3285(3044)	43.0(46.0)	20.5(18.6)	127.1(128.3)	4
Hongkong	8.3(9.1)	2.8		2.8(3.5)	3516(2853)	42.7(48.4)	20.1(18.4)	134.5(130.3)	1
Lee 68	11.9(14.3)	2.6		3.1(2.1)	2998(2945)	42.4(45.8)	21.4(19.0)	129.4(129.0)	2
Mandarin	7.6(10.7)	1.8		2.0(1.5)	3489(3240)	46.0(45.0)	20.6(18.2)	119.4(126.8)	2
Patoka	9.6(11.8)	1.4		3.1(2.2)	2800(3044)	45.7(46.0)	19.7(18.6)	125.5(128.3)	4
Early Midseason[2]									
Ogden	15.6		28	1.8	2871	42.8	19.9	133.2	6
A kan	9.5(16.9)	2.3	27(29)	1.8(1.2)	3311(2908)	42.2(42.6)	19.2(19.6)	128.8(135.1)	2
Arksoy 2913	11.1(15.6)	1.9	27(28)	1.8(1.8)	3410(2871)	45.0(42.8)	18.9(19.9)	131.3(133.2)	6
Arksoy 2913	11.8(20.5)	1.5	28(32)	2.0(1.5)	4279(2984)	42.6(41.9)	18.2(20.8)	133.6(131.6)	2
Arksoy 2913	13.0(18.8)	2.0	30(28)	2.2(1.9)	2871(2668)	45.2(41.8)	19.8(21.2)	131.6(133.8)	2
Bordette 13	10.1(16.5)	2.4	27(25)	2.1(2.2)	3128(2534)	46.0(41.8)	19.2(21.2)	136.0(133.8)	3
Bordette 19	10.9(16.3)	1.6	32(30)	1.8(1.5)	3128(2984)	45.1(42.3)	17.1(19.9)	133.8(132.7)	3
Delsoy	16.4(17.6)	1.5	28(27)	2.1(2.1)	2835(2783)	41.9(42.5)	20.5(20.3)	133.4(134.4)	4
Dortchsoy 2	12.0(17.6)	1.8	29(27)	2.2(2.2)	3172(2534)	44.1(42.5)	18.9(20.3)	131.7(134.4)	4
Dortchsoy 7	9.4(17.5)	2.7	28(29)	1.9(1.9)	3172(2817)	44.3(41.8)	20.3(20.9)	129.1(131.9)	3
Gem	7.1(16.9)	2.0	30(29)	2.8(1.2)	3686(2908)	44.4(42.6)	18.1(19.6)	132.5(135.1)	2
Georgia 781	16.6(16.5)	...	27(26)	1.8(1.8)	3044(2926)	43.9(43.8)	18.1(18.6)	133.0(135.4)	2
Hale 12	9.3(16.3)	2.3	34(30)	1.7(1.5)	3287(2984)	43.4(42.3)	19.5(19.9)	131.8(132.7)	3
Magnolia	11.4(16.3)	1.9	31(30)	1.6(1.5)	3194(2984)	43.3(42.3)	18.2(19.9)	129.2(132.7)	3
Mamredo	10.4(16.5)	2.0	28(26)	1.6(1.8)	3688(2926)	44.2(43.8)	16.9(18.6)	133.6(135.4)	2
N45-2885	13.6(16.5)	2.0	29(26)	2.1(1.8)	3150(2926)	45.2(43.8)	17.4(18.6)	134.5(135.4)	2
N45-2894	10.3(15.2)	1.9	32(27)	2.2(1.6)	3462(2783)	45.8(42.3)	17.9(19.9)	132.2(132.7)	4
P. I. 97066	9.9(16.3)	1.9	26(30)	2.1(1.5)	3385(2984)	44.8(42.3)	19.0(19.9)	130.7(132.7)	3
Ralsoy	13.0(17.5)	2.0	30(29)	1.7(1.9)	3217(2817)	41.6(41.8)	19.7(20.9)	129.8(131.9)	3
Rose Non Pop 6-40 M	12.7(20.5)	2.7	26(32)	2.2(1.5)	2700(2984)	45.3(41.0)	18.5(20.8)	127.0(131.6)	2

(Continued)

[1]Numbers in parentheses are values for S100 when grown during same years.
[2]Numbers in parentheses are values for Ogden when grown during same years.

Appendix Table 3.—Continued

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Late midseason[2]									
Ogden	14.9	....	28	1.6	2766	43.1	20.0	132.9	4
Burdette 20	8.7(12.5)	2.6	32(25)	3.6(2.8)	3217(2400)	48.3(45.1)	19.2(20.1)	135.9(133.3)	1
CNS	10.8(17.3)	2.7	31(29)	2.0(1.6)	3385(2700)	45.7(42.5)	17.6(20.6)	133.1(132.2)	3
Mamloxi	8.1(19.6)	3.9	34(30)	2.5(1.0)	2548(2871)	46.0(41.2)	14.6(20.8)	136.2(131.6)	2
Missi	10.0(19.6)	3.9	44(30)	2.1(1.0)	4161(2871)	43.4(41.2)	17.4(20.8)	137.7(131.6)	2
Monetta	8.6(15.7)	2.6	35(29)	1.8(1.2)	3688(2908)	44.4(42.4)	15.6(19.9)	137.1(132.8)	3
Palmetto	7.7(17.3)	2.7	41(29)	1.9(1.6)	3812(2700)	46.6(42.5)	16.5(20.6)	136.2(132.2)	3
P. I. 89775A	12.4(15.7)	2.6	31(29)	2.2(1.2)	3812(2908)	41.7(42.4)	18.7(19.9)	135.3(132.8)	3
Roanoke	13.2(17.3)	2.7	36(29)	2.1(1.6)	2749(2700)	41.8(42.5)	20.4(20.6)	133.8(132.2)	3
Tenn. Non Pop	6.3(10.2)	2.2	35(28)	2.5(1.2)	2984(2965)	44.2(43.6)	17.9(19.1)	134.6(131.6)	2
Tokyo	4.4(10.2)	2.2	34(28)	2.0(1.2)	2110(2965)	43.7(43.6)	17.4(19.1)	136.0(131.6)	2
Volstate	12.7(14.9)	2.1	34(28)	1.9(1.6)	2984(2766)	42.0(43.1)	19.8(20.0)	136.0(132.9)	4
Wood's Yellow	8.4(14.9)	2.1	30(28)	3.3(1.6)	2071(2766)	43.8(43.1)	17.1(20.0)	133.6(132.9)	4
26-39 M	10.7(19.6)	3.9	35(30)	2.5(1.0)	2766(2871)	44.7(41.2)	17.4(20.8)	134.8(131.6)	2

[2]Numbers in parentheses are values for Ogden when grown during same years.

Appendix Table 4. Average Seed And Hay Yields And Days From Planting To Harvest, Rice Branch Experiment Station, Stuttgart, 1936-48

Variety	Seed Production				Hay Production			
	Mean yield per acre[1]	L.S.D. 5 %	Planting to maturity	Years tested, 1936-44	Mean yield per acre[2]	L.S.D. 5 %	Planting to harvest	Years tested, 1936-48
	Bushels	*Bushels*	*Days*	*Number*	*Tons*	*Tons*	*Days*	*Number*
Arksoy	14.5	..	135	9	1.71(2.22)	0.13	99	9
Arkan	13.8(14.5)	1.2	126	9	1.57(2.29)	0.12	99	10
Arksoy 2913	16.2(16.0)	1.3	134	7	1.47(2.19)	0.12	99	11
Biloxi	10.8(14.5)	1.2	168	9	2.01(2.22)	0.13	121	9
Boone	11.8(16.3)	1.5	119	6	1.10(2.47)	0.16	80	6
Borchet	9.6(14.5)	1.2	164	9	1.75(2.22)	0.13	124	9
Chiquito	11.8(14.6)	1.4	135	7	1.92(2.25)	0.16	102	7
Clemson	10.3(16.3)	1.5	143	6	1.95(2.27)	0.15	110	8
Delnoshat	12.2(14.6)	1.4	168	7	1.80(2.25)	0.16	118	7
Delsta 6676	11.2(14.5)	1.2	151	9	2.10(2.22)	0.13	118	9
Georgian	13.5(14.5)	1.2	143	9	2.12(2.22)	0.13	115	9
Laredo	10.7(14.5)	1.2	135	9	1.84(2.09)	0.12	102	12
Looney 3	15.5(14.5)	1.2	142	9	2.07(2.29)	0.12	110	10
Macoupin	10.1(15.1)	1.2	139	8	1.10(2.26)	0.13	80	9
Magnolia	16.6(20.2)	2.4	129	2	1.78(2.74)	0.24	99	4
Mamatan	13.8(14.6)	1.4	147	7	1.85(2.25)	0.16	115	7
Mamloxi	13.3(14.5)	1.2	151	9	1.89(2.18)	0.13	118	11
Mammoth Brown	11.6(14.6)	1.4	139	7	1.74(2.25)	0.16	102	8
Mamredo 607	9.1(12.4)	1.4	154	5	1.38(2.14)	0.16	105	7
Monetta	13.5(14.5)	1.2	141	9	1.76(2.21)	0.12	110	11
Ogden	19.5(17.8)	1.7	130	5	1.92(2.21)	0.14	99	9
Otootan	8.9(14.5)	1.2	172	9	2.15	.....	124	13
Palmetto	12.0(14.5)	1.2	143	9	1.88(2.15)	0.12	113	13
Pee Dee	10.1(14.6)	1.4	172	7	2.22(2.25)	0.16	124	7
P. I. 71570	12.1(14.5)	1.2	143	9	1.84(2.21)	0.12	105	11
P. I. 95727	13.6(14.5)	1.2	153	9	2.13(2.22)	0.13	121	9
Ralsoy	17.2(17.1)	1.9	132	4	1.65(2.47)	0.16	99	6
Seminole	13.1(17.1)	1.9	151	4	2.24(2.47)	0.16	121	6
Tanner	13.3(15.3)	1.3	144	7	1.87(2.14)	0.13	110	11
Tenn. Non Pop	16.8(17.8)	1.7	147	5	2.69(2.88)	0.18	110	5
Virginia	11.9(14.5)	1.2	115	9	1.24(2.22)	0.13	80	9
White Biloxi	12.2(14.1)	1.3	164	8	2.06(2.19)	0.14	121	9
Wood's Yellow	14.2(17.8)	1.7	151	5	2.43(2.38)	0.18	119	5
Yelredo	12.4(14.6)	1.4	147	7	1.78(2.25)	0.16	115	7

[1]Numbers in parentheses are yields for Arksoy when grown during the same years.
[2]Numbers in parentheses are yields for Otootan when grown during the same years.

Appendix Table 5. Average Seed And Hay Yields and Days From Planting To Maturity, Rice Branch Experiment Station, Stuttgart, 1936-44

Variety or P. I. No.	Seed yield per acre	Planting to maturity	Hay yield per acre	Planting to harvest
	Bushels	*Days*	*Tons*	*Days*
Varieties grown in 1936 and 1937				
87000	13.8	137	1.50[1]	113
87008	12.6	137	1.25[1]	105
87011	8.8[1]	123	1.15[1]	97
95723	10.0	131	1.28[1]	124
95792	8.5[1]	137	1.17[1]	113
95922	11.3	123	1.14[1]	92
96181	9.5	149	1.15[1]	105
97244	12.4	144	1.26[1]	114
Arksoy	11.6	134	.....	.....
Illini	8.1[1]	110	0.86[1]	86
Indiana Laredo	6.0[1]	143	1.38[1]	96
Kingwa	11.2	113	1.17[1]	80
Mammoth Yellow	7.4[1]	159	1.36[1]	127
Manchu	8.0[1]	110	0.90[1]	82
Midwest	8.6[1]	143	1.14[1]	92
Otootan	.....	.....	2.21	124
Ozark	10.2	137	1.20[1]	92
Peking	6.0[1]	121	1.38[1]	96
Tanloxi	10.8	169	1.80[1]	133
Tokyo	11.2	164	1.68[1]	130
Wilson	10.4	113	1.17[1]	84
Difference required for significance, 5 per cent level	2.4	.....	0.29	.....
Varieties grown in 1936, 1937, and 1938				
85537	12.8[2]	138	1.19[1]	126
87586	9.9	135	0.89[1]	85
91425	10.7	149	0.98[1]	111
95730	7.0[1]	137	1.00[1]	96
96363	10.5	154	1.84[1]	117
96539	12.8[1]	137	1.56[1]	113
96681	11.6	135	1.42[1]	104
96696	10.8	143	1.33[1]	113
96972	6.4(9.4)[1 3]	143	0.96(1.86)[1 3]	74
97050	11.5	135	1.41[1]	104
97138	10.0	130	1.26[1]	114
97187	8.0(9.4)[1 3]	140	1.37[1]	113
Arksoy	10.9	134	.....	.....
Avoyelles	8.8[1]	181	1.54(2.12)[1 3]	127
Chamaine	11.5	170	1.53[1]	133
Creole	12.1	153	1.61[1]	120
Delsta 6677	7.7	169	1.63[1]	133
Lexington	8.7	128	0.97[1]	93
Looney 1	13.4[2]	164	1.54[1]	123
Looney 2	14.6[2]	150	1.74[1]	122
Loxitan	13.7[2]	169	2.06	133
Myer	12.1	149	1.45[1]	119
Oloxi	11.2	168	2.13	137
Otootan	.....	.....	2.07	124
Pinedell	10.3	142	1.19[1]	93
Rokusun	11.6	148	1.44[1]	122
Southern Prolific	12.9[2]	137	1.62[1]	113
Yellow Biloxi	13.4[2]	170	1.99	131
Difference required for significance, 5 per cent level	1.8	.....	0.22	.....

[1] Yields significantly lower than the standard variety.
[2] Yields significantly higher than the standard variety.
[3] Numbers in parentheses are yields for Arksoy or Otootan when grown during the same number of years.

(Continued)

Appendix Table 5.—Continued

Variety or P. I. No.	Seed yield per acre	Planting to maturity	Hay yield per acre	Planting to harvest
	Bushels	*Days*	*Tons*	*Days*
Varieties grown in 1941 and 1942				
71625	16.3[1]	167	2.72	121
86922	17.2	135	2.50	107
86975	14.0[1]	157	2.50	115
90486-1-1-1	16.8	147	1.28[1]	101
90486-1-1-2	15.9[1]	162	2.34	121
95882	17.0	153	2.94[2]	121
Arksoy	20.2	134	.....	.....
Faulkner	18.4	143	2.53	112
Mamloxi 2	19.0	147	2.62	115
Otootan	.....	.....	2.58	124
Difference required for significance, 5 per cent level	3.4	.....	0.33	.....
Varieties grown in 1941, 1942, and 1943				
85667	11.4[1]	115	1.32[1]	92
Arksoy	17.0	134	.....	.....
Mamloxi 2	13.0[1]	147	2.30	115
Otootan	.....	.....	2.31	124
Difference required for signficance, 5 per cent level	2.4	.....	0.22	.....
Varieties grown in 1943 and 1944				
82238-1	15.8(19.3)[3]	123	.....	.....
Arksoy	13.9	134	.....	.....
Delsoy	12.5	145	1.56[1]	105
Easycook	11.8[1]	145	1.48[1]	102
Gibson	9.3[1]	113	1.19[1]	84
Herman	7.5[1]	141	1.26[1]	94
Mamloxi 2	8.2[1]	147	1.86[1]	115
Mingo	6.8[1]	108	0.82[1]	77
Otootan	.....	.....	2.12	124
Patoka	8.6[1]	114	1.10[1]	84
Scioto	7.3[1]	111	0.88[1]	77
Difference required for significance, 5 per cent level	1.8	.....	0.19	.....
Varieties grown 1945 to 1948				
Acadian			1.34(1.81)[1,3]	135
CNS			1.50(1.81)[1,3]	127
Gatan			1.71(1.69)[3]	130
Missoy			1.67(1.80)[3]	127
Otootan			1.97	124
Roanoke			1.66[1]	124
S160			1.05(1.69)[1,3]	96
Difference required for significance, 5 per cent level	.....	.....	0.23	.....

[1] Yields significantly lower than the standard variety.
[2] Yields significantly higher than the standard variety.
[3] Numbers in parentheses are yield for Arksoy or Otootan when grown during the same number of years.

Appendix Table 6. Average Seed Yields And Days From Planting To Maturity, Rice Branch Experiment Station, Stuttgart, 1943-48

Variety and group	Mean yield per acre	L.S.D. 5%	Planting to maturity	Years tested
Early[1]	*Bushels*	*Bushels*	*Days*	*Number*
S100	15.2	....	119	6
Boone	10.7(13.7)	1.5	112(120)	2
C463	12.4(15.7)	2.4	105(116)	2
C508	12.4(15.7)	2.4	114(116)	2
Chief	11.4(15.6)	1.7	102(118)	3
Gibson	11.9(14.4)	1.2	106(117)	5
Hongkong	11.4(13.8)	2.3	115(111)	1
Lincoln	12.9(15.7)	2.4	105(116)	2
Macoupin	10.4(13.7)	1.5	120(120)	2
Patoka	13.1(14.4)	1.2	111(117)	5
Early midseason[2]				
Ogden	16.6	....	138	6
Arkan	12.7(19.0)	3.1	142(146)	2
Arksoy 2913	13.6(16.6)	1.6	138(138)	6
Armredo	15.8(20.1)	2.8	139(133)	2
Burdette 13	17.0(16.8)	3.5	136(134)	2
Burdette 19	12.9(14.8)	2.4	134(135)	3
Delsoy	16.1(18.5)	2.2	147(141)	3
Dortchsoy 2	17.8(16.6)	2.1	136(136)	4
Dortchsoy 7	14.4(16.6)	2.1	136(136)	4
Gem	17.6(17.0)	2.5	136(133)	3
Georgia 731	12.6(19.0)	3.1	146(146)	2
Hale 12	16.9(16.4)	2.3	137(136)	2
Kilpatrick 10	14.2(16.4)	2.3	133(136)	2
Magnolia	13.0(18.5)	2.2	144(141)	3
Mamredo	15.2(18.5)	2.2	145(141)	3
N45-2885	13.9(16.4)	2.3	138(136)	2
N45-2994	19.7(16.4)	2.3	144(136)	2
P. I. 97066	13.2(16.1)	1.7	136(142)	4
Ralsoy	13.1(18.5)	2.2	142(141)	3
Rose Non Pop	16.0(17.0)	2.5	134(133)	3
6-40 M	14.8(20.1)	2.8	138(133)	2
Late midseason[2]				
Ogden	16.4	....	137	6
Burdette 20	14.9(12.4)	2.0	144(134)	2
CNS	16.8(16.9)	1.4	150(135)	5
Dortchsoy 31	19.0(17.5)	2.1	144(136)	2
Missoy	13.7(17.3)	1.9	159(139)	3
Monetta	13.3(17.3)	1.9	152(139)	3
N45-3563	18.3(17.5)	2.1	146(136)	2
Palmetto	13.4(16.4)	1.3	146(135)	6
P. I. 89775A	13.9(17.3)	1.9	147(139)	3
Roanoke	20.3(16.9)	1.4	147(135)	5
Tanner	18.7(16.5)	1.6	148(134)	4
Tenn. Non Pop	13.8(16.2)	2.2	163(143)	2
Tokyo	11.0(16.2)	2.2	163(143)	2
Volstate	18.2(16.4)	1.3	150(137)	6
Wood's Yellow	15.9(15.8)	1.6	162(137)	4
26-39 M	17.3(19.1)	2.2	150(130)	2

[1] Numbers in parentheses are values for S100 when grown during the same years.
[2] Numbers in parentheses are values for Ogden when grown during the same years.

(Continued)

Appendix Table 6.—Continued

Variety and group	Mean yield per acre	L.S.D. 5%	Planting to maturity	Years tested
Late[3]	*Bushels*	*Bushels*	*Days*	*Number*
Mamloxi	14.7	....	164	6
Acadian	13.6(14.7)	1.3	164(166)	6
Auburn 1	13.3(10.8)	1.9	158(170)	2
Avoyelles	11.6(14.2)	2.2	169(168)	3
Cherokee	14.5(17.1)	1.6	157(166)	5
Clemson	12.5(12.0)	2.9	164(172)	2
Delsta	14.5(14.2)	2.2	166(168)	3
Gatan	18.0(17.1)	1.6	156(166)	5
JW 45	18.6(16.0)	1.9	154(160)	2
Louisiana Green	14.7(15.3)	1.6	166(159)	3
LZ	13.7(14.2)	2.2	168(168)	3
Mamotan 6640	14.0(14.7)	1.3	162(166)	6
Nanda	14.9(14.1)	1.8	163(165)	4
Pelican 1	14.2(14.2)	2.2	168(168)	3
P. I. 85857	13.7(16.0)	1.9	160(160)	2
Seminole	12.7(14.7)	1.3	161(166)	6
Yelnando	13.8(15.3)	1.6	156(159)	3

[3] Numbers in parentheses are values for Mamloxi when grown during the same years.

Appendix Table 7. Agronomic And Chemical Data, Rice Branch Experiment Station, Stuttgart, 1943-48

Variety and group	Plant height	Lodging	Shattering	Seed quality	Seeds per pound	Protein	Oil	Iodine value of the oil
	Inches	*Class*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*
Early[1]								
S100	**26**	**1.1**	**2.0**	**2.1**	**3462**	**46.0**	**19.2**	**127.1**
Boone	22(22)	1.0(1.0)	2.0(1.5)	2.8(1.5)	3263(3194)	46.4(48.3)	19.7(18.3)	117.8(126.5)
C 463	18(23)	1.0(1.0)	1.0(1.0)	3.3(2.5)	3658(3335)	43.4(45.7)	22.0(19.6)	116.5(127.7)
C 508	17(23)	1.0(1.0)	1.0(1.0)	3.4(2.5)	2908(3335)	44.6(45.7)	21.8(19.6)	118.4(127.7)
Chief	22(25)	1.0(1.0)	1.0(1.5)	3.5(1.5)	4161(3287)	43.6(47.3)	21.4(18.7)	123.3(128.9)
Gibson	19(24)	1.0(1.0)	2.2(1.9)	3.3(2.0)	3688(3436)	44.4(46.6)	21.1(19.2)	125.8(127.8)
Hongkong	27(28)		2.0(3.5)	2.3(2.0)	4404(4239)	41.6(45.2)	20.8(20.1)	135.4(130.4)
Lincoln	20(23)	1.0(1.0)	3.8(1.0)	3.4(2.5)	3311(3335)	41.1(45.7)	22.6(19.6)	128.8(127.7)
Macoupin	24(22)	1.0(1.0)	2.0(1.5)	2.2(1.5)	3411(3436)	46.2(48.3)	20.4(18.3)	125.2(126.5)
Patoka	19(24)	1.0(1.0)	2.2(1.9)	3.2(2.0)	3172(3436)	46.4(46.6)	20.0(19.2)	128.2(127.8)
Early midseason[2]								
Ogden	**22**	**1.0**	**2.6**	**1.9**	**3150**	**44.5**	**20.4**	**131.4**
Arkan	22(24)	2.1(1.0)	2.6(1.8)	2.1(2.1)	3629(2945)	44.1(45.2)	19.0(19.6)	127.4(131.2)
Arksoy 2913	22(22)	1.2(1.0)	1.8(2.6)	2.1(1.9)	3780(3150)	46.4(44.5)	19.1(20.4)	130.6(131.4)
Armredo	24(21)	1.8(1.0)	1.0(1.5)	2.6(2.1)	4404(3044)	43.5(43.8)	20.8(20.5)	134.2(131.1)
Burdette 13	29(22)	1.1(1.0)	1.9(3.2)	2.3(2.1)	2668(3263)	43.5(43.8)	20.7(21.0)	130.6(133.0)
Burdette 19	25(21)	1.6(1.0)	2.5(3.6)	2.3(2.1)	3812(3287)	45.5(44.1)	19.4(20.7)	127.9(130.8)
Delsoy	25(23)	2.8(1.0)	1.3(1.5)	2.1(2.1)	3086(2945)	47.0(44.9)	17.4(20.4)	132.2(131.0)
Dortchsoy 2	21(21)	1.0(1.0)	2.5(3.6)	1.8(1.9)	3489(3311)	41.9(44.0)	20.8(20.6)	131.9(131.7)
Dortchsoy 7	23(21)	1.2(1.0)	2.3(3.6)	1.9(1.9)	3844(3311)	43.9(44.0)	19.7(20.6)	131.7(131.7)
Gem	23(21)	1.4(1.0)	1.1(2.5)	2.3(2.1)	3311(3150)	45.9(43.9)	21.0(21.3)	129.2(132.2)
Georgia 731	35(24)	4.1(1.0)	1.1(1.8)	2.9(2.1)	2825(2945)	46.1(45.2)	18.4(19.6)	129.3(131.2)
Hale 12	20(20)	1.0(1.0)	3.8(4.2)	1.8(1.6)	3658(3360)	44.5(44.2)	19.9(20.2)	132.2(130.4)
Kilpatrick 10	18(20)	1.0(1.0)	1.5(4.2)	1.4(1.6)	2780(3360)	46.5(44.2)	19.5(20.2)	128.2(130.4)
Magnolia	32(23)	3.3(1.0)	1.3(1.5)	2.7(2.1)	3150(2945)	44.9(44.9)	20.4(20.4)	129.2(131.0)
Mamredo	26(23)	1.6(1.0)	1.3(1.5)	2.4(2.1)	3107(2945)	44.7(44.9)	19.0(20.4)	124.9(131.0)
N45-2885	22(20)	1.1(1.0)	3.0(4.2)	2.1(1.6)	4239(3360)	46.2(44.2)	18.5(20.2)	120.5(130.4)
N45-2994	27(20)	1.0(1.0)	2.0(4.2)	1.9(1.6)	3217(3360)	46.2(44.2)	18.6(20.2)	134.0(130.4)
P. I. 97066	30(22)	2.8(1.0)	1.6(2.2)	2.8(2.1)	3749(3044)	46.9(44.9)	18.8(20.4)	129.5(131.0)
Ralsoy	23(23)	1.4(1.0)	1.0(1.5)	1.5(2.1)	3489(2945)	48.3(44.9)	18.5(20.4)	129.3(131.0)
Rose Non Pop	24(21)	1.2(1.0)	1.0(2.5)	2.0(2.1)	3489(3150)	43.0(43.9)	21.2(21.3)	127.6(132.2)
6-40M	19(21)	1.9(1.0)	1.0(1.8)	2.0(2.1)	2607(3044)	46.5(43.8)	19.9(21.5)	125.8(131.1)

[1] Numbers in parentheses are values for S100 when grown during the same years.
[2] Numbers in parentheses are values for Ogden when grown during the same years.

(Continued)

Appendix Table 7.—Continued

Variety and group	Plant height	Lodging	Shattering	Seed quality	Seeds per pound	Protein	Oil	Iodine value of the oil
	Inches	*Class*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*
Late midseason[2]								
Ogden	22	1.0	2.6	2.0	3194	44.7	20.2	131.8
Burdette 20	31(22)	1.3(1.0)	1.0(4.0)	1.8(2.0)	3658(3411)	43.7(43.6)	21.0(20.2)	133.4(130.1)
CNS	28(22)	3.4(1.0)	1.1(2.9)	1.8(2.0)	3217(3311)	46.3(44.2)	18.1(20.6)	129.0(131.9)
Dortchsoy 31	23(20)	1.0(1.0)	1.0(4.0)	1.3(1.9)	3263(3335)	43.3(44.0)	20.2(20.0)	133.2(131.4)
Mikado	39(23)	3.6(1.0)	1.0(1.6)	1.7(2.2)	4239(3065)	43.8(45.3)	18.5(20.2)	133.1(131.3)
Manchu	33(23)	4.2(1.0)	1.6(1.6)	1.7(2.2)	3718(3065)	46.8(45.3)	16.1(20.2)	133.0(131.3)
N45-3563	32(20)	1.0(1.0)	1.0(4.0)	1.8(1.9)	3411(3335)	42.8(44.0)	20.7(20.0)	133.9(131.4)
Palmetto	43(22)	2.4(1.0)	1.4(2.6)	1.6(2.0)	4124(3194)	46.1(44.7)	17.4(20.2)	132.0(131.8)
P. I. 89775A	31(23)	1.6(1.0)	1.1(1.6)	2.8(2.2)	3436(3065)	45.1(45.3)	19.2(20.2)	133.3(131.3)
Roanoke	33(22)	1.2(1.9)	1.1(2.9)	1.5(2.0)	3664(3311)	41.4(44.2)	21.7(20.6)	131.9(131.9)
Tanner	40(21)	2.6(1.0)	1.7(3.6)	1.9(2.1)	4320(3485)	44.4(44.2)	17.7(20.4)	137.8(132.0)
Tenn. Non Pop	39(24)	2.0(1.0)	1.0(1.0)	2.0(2.0)	2850(2908)	45.8(45.8)	18.9(19.7)	133.8(131.8)
Tokyo	33(24)	2.5(1.0)	1.5(1.0)	1.8(2.0)	1955(2908)	45.1(45.8)	18.5(19.7)	134.6(131.8)
Volstate	33(22)	1.5(1.0)	1.2(2.6)	1.8(2.0)	3150(3194)	42.5(44.7)	20.9(20.2)	133.6(131.8)
Woods Yellow	29(23)	1.2(1.0)	1.4(2.2)	1.8(2.1)	1972(3150)	43.6(45.0)	18.6(20.3)	130.7(131.9)
26-29M	28(22)	1.1(1.0)	1.0(1.9)	1.6(2.2)	2984(3240)	41.4(44.4)	19.4(21.3)	131.6(132.0)
Late[3]								
Mamloxi	35	1.1	1.0	2.0	2965	44.5	17.3	136.5
Acadian	45(35)	2.6(1.1)	1.0(1.0)	1.8(2.0)	4086(2965)	44.7(44.5)	18.9(17.3)	135.3(136.5)
Auburn	34(36)	5.0(1.0)	1.6(1.0)	2.0(2.2)	3572(2732)	46.6(46.8)	15.8(16.8)	132.9(135.0)
Auburn 1	44(37)	4.6(1.2)	1.3(1.0)	1.8(2.0)	4586(2965)	43.7(45.8)	16.6(17.0)	138.8(136.2)
Averyella	36(35)	2.0(1.1)	1.0(1.0)	2.0(2.0)	2783(3194)	45.9(43.4)	18.3(17.7)	133.2(136.8)
Cherokee	40(38)	2.6(1.2)	2.0(1.0)	2.5(2.2)	3688(2700)	46.4(46.3)	16.7(16.3)	133.9(136.6)
Clemson	36(37)	1.9(1.2)	1.0(1.0)	2.2(2.2)	2439(2965)	44.9(45.8)	18.0(17.0)	131.5(136.2)
Delisoy	45(35)	2.8(1.1)	1.0(1.0)	1.8(2.0)	3502(3194)	43.1(43.4)	17.0(17.7)	136.3(136.8)
Gaston	30(32)	1.1(1.0)	1.0(1.0)	1.5(1.8)	2756(3024)	40.5(43.4)	18.5(17.4)	128.8(135.0)
J. W. 45	43(33)	2.9(1.0)	1.0(1.0)	2.2(1.9)	4362(2984)	43.9(43.1)	17.2(17.6)	138.5(136.7)
Louisiana Green	47(37)	3.2(1.2)	1.0(1.0)	2.0(2.2)	4274(2965)	45.8(45.8)	18.3(17.0)	136.1(136.2)
LZ	30(35)	1.2(1.1)	1.0(1.0)	2.1(2.0)	2835(2965)	44.2(44.5)	18.2(17.3)	136.5(136.5)
Mamoth 0640	31(36)	1.5(1.1)	1.2(1.0)	1.9(2.1)	2732(2945)	43.8(45.0)	19.2(17.3)	132.0(137.2)
Nanda	34(32)	2.6(1.0)	1.0(1.0)	2.0(1.8)	3660(3024)	43.4(43.4)	18.6(17.4)	131.8(135.0)
P. I. 88897	50(37)	3.4(1.2)	1.0(1.0)	1.5(2.2)	4320(2965)	45.7(45.8)	18.7(17.0)	136.6(136.2)
Pelican 1	36(35)	3.3(1.1)	1.0(1.0)	2.4(2.0)	1874(2965)	46.0(44.5)	18.4(17.3)	133.4(136.5)
Seminole	38(33)	2.0(1.0)	1.0(1.0)	2.1(1.9)	2889(2984)	43.7(43.1)	18.8(17.6)	129.8(136.7)

[1] Numbers in parentheses are values for Ogden when grown during the same years.
[2] Numbers in parentheses are values for Mamloxi when grown during the same years.

Appendix Table 8. Seed Yields, Days from Planting to Maturity, and Chemical Data, Rice Branch Experiment Station, Stuttgart, 1943

Variety	Acre yield	Planting to maturity	Protein	Oil	Iodine value of the oil
	Bushels	*Days*	*Per cent*	*Per cent*	*Number*
Ogden[1]	15.2	156	47.1	18.1	130.9
Arisoy	1.6	186	48.6	15.5	133.7
Arksoy	14.7	154	49.7	16.2	130.9
Auburn 2	14.0	160	48.0	17.0	132.3
Biloxi	0.2	187	50.2	15.1	137.4
Burnette	1.9	186	46.8	16.1	132.3
Charlee	3.0	181	46.8	16.3	134.6
Georgia 723	12.5	150	50.7	15.3	132.3
Hayseed	10.2	171	48.6	17.4	133.0
P. I. 84642	12.0	156	48.0	16.8	131.7
P. I. 86974	11.5	156	47.9	16.7	133.9
Mammoth Yellow	6.8	171	50.9	16.7	131.6
Rokusun 25A	4.5	156	50.8	15.2	130.6
White Biloxi	0.3	187	50.9	15.6	136.6
Yelredo	5.9	172	51.9	16.9	130.5
Difference required for significance, 5 per cent level	3.5				

[1] Ogden included for comparison.

Appendix Table 9. Average Seed and Hay Yields, Cotton Branch Experiment Station, Marianna, 1936-44

Variety	Seed production			Hay production		
	Mean yield per acre[1]	L.S.D. 5%	Years tested 1936-44	Mean yield per acre[1]	L.S.D. 5%	Years tested 1936-44
	Bushels	*Bushels*	*Number*	*Tons*	*Tons*	*Number*
Arksoy 2913	21.7	....	9	2.60	.....	12
Arkan	16.3(25.0)	2.6	5	2.50(3.36)	0.35	4
Arksoy	21.4(23.7)	2.2	8	2.83(3.01)	0.25	8
Arksoy 2905	22.7(21.7)	1.8	9	2.82(2.89)	0.23	9
Arksoy 2908	21.2(21.7)	1.8	9	2.74(2.89)	0.23	9
Delsta 6676	16.4(21.7)	1.8	9	3.12(2.89)	0.23	9
Laredo	12.4(21.7)	1.8	9	2.47(2.69)	0.20	11
Macoupin	11.6(23.7)	2.2	8	1.56(3.01)	0.25	8
Mamloxi	17.8(21.7)	1.8	9	3.04(2.82)	0.22	10
Nanda	18.4(23.3)	3.4	2	4.41(3.16)	0.38	3
Ogden	28.8(24.4)	3.1	4	2.86(2.66)	0.23	7
Otootan	.....	....	..	2.76(2.35)	0.28	4
Palmetto	.....	....	..	2.22(2.35)	0.28	4
Ralsoy	26.7(25.0)	2.6	5	3.11(3.36)	0.35	4
S100	.....	....	..	1.49(1.82)	0.35	2
Tanner	16.0(24.4)	3.1	4	2.77(2.66)	0.23	7
Volstate	26.0(24.4)	3.1	4	3.00(2.66)	0.23	7
White Biloxi	13.5(21.2)	2.1	8	2.89(2.84)	0.24	8

[1] Numbers in parentheses are values for Arksoy 2913 when grown during the same years.

Appendix Table 10. Average Seed and Hay Yields, Cotton Branch Experiment Station, Marianna, 1936-47

Variety	Yields per acre	
	Seed	Hay
	Bushels	*Tons*
Varieties grown 1936-1942		
Arksoy 2913	21.1	2.65
Arksoy	17.1	2.79
Chiquita	13.9	2.69
Delnoshot	13.8	2.63
Mammoth Brown	11.7	2.60
Mamotan	15.5	2.42
Mamredo 607	14.7	2.23
P. I. 38462	13.3	2.48
P. I. 60247	13.5	2.80
P. I. 60257	15.4	2.73
P. I. 71168-91425	17.0	2.80
P. I. 71605	14.9	2.83
P. I. 71638	14.6	2.78
Southern Prolific	16.2	2.77
Tokyo	13.9[1]	3.11
Difference required for significance, 5 per cent level	2.2	0.25
Varieties grown 1943-1947		
Arksoy 2913	23.6	3.71
Barchet	9.5	3.22
Biloxi	6.7	3.66
Boone	13.1	1.42
Clemson	13.4	3.80
Delsoy	21.0	3.49
Easycook	17.4	3.19
Gatan	.....	2.30[2]
Georgian	14.0	3.44
Gibson	16.1	1.43
Herman	11.3	2.62
Looney 3	17.0	4.16
Magnolia	.....	1.54[2]
Mamloxi 2	12.6	3.68
Mingo	10.0	0.84
Missoy	.....	1.48[2]
Monetta	20.0	3.50
Patoka	10.3	0.97
P. I. 71570	17.4	3.15
Scioto	8.0	0.70
Seminole	8.6	2.70
Virginia	10.9	2.52
Difference required for significance, 5 per cent level	4.1	0.57

[1] Comparable yield for Arksoy 2913 was 19.4 bushels per acre.
[2] Grown in 1946 and 1947; comparable yield for Arksoy 2913 was 1.50 tons per acre.

Appendix Table 11. Agronomic and Chemical Data, Cotton Branch Experiment Station, Marianna, 1943-48

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Early midseason[1]										
Ogden	21.4	....	27	1.0	2.1	3107	37.9	21.7	134.7	6
Arkan	10.8(17.6)	1.7	28(28)	1.6(1.2)	1.9(1.8)	3910(2908)	39.6(36.8)	20.8(22.2)	128.7(133.4)	2
Arksoy 2913	19.4(21.4)	1.5	28(27)	1.4(1.0)	1.9(2.1)	3629(3107)	41.6(37.9)	20.5(21.7)	132.5(134.7)	6
Armredo	26.6(35.6)	3.8	31(28)	2.6(1.2)	1.9(1.5)	4124(2945)	39.1(37.8)	20.1(22.2)	135.7(134.8)	2
Burdette 13	20.6(23.2)	2.7	32(24)	1.8(1.2)	2.5(2.2)	3436(3335)	41.7(35.5)	20.2(23.7)	130.4(132.3)	2
Burdette 19	15.4(17.5)	1.9	29(25)	1.9(1.1)	2.3(2.6)	3600(3385)	41.9(35.5)	20.0(23.7)	128.8(132.3)	3
Delsoy	18.6(26.7)	2.3	30(28)	3.0(1.1)	1.3(1.5)	3150(2889)	40.1(37.9)	18.7(21.7)	135.7(134.7)	3
Dortchsoy 2	17.8(18.7)	1.5	28(27)	1.0(1.1)	2.1(2.5)	3287(3263)	37.9(35.5)	21.9(23.7)	133.7(132.3)	4
Dortchsoy 7	15.7(18.7)	1.5	29(27)	1.2(1.1)	2.1(2.5)	3910(3385)	40.7(35.5)	20.5(23.7)	131.0(132.3)	4
Gem	28.0(30.4)	2.7	27(25)	1.6(1.1)	2.1(1.8)	3107(3150)	40.8(37.8)	21.8(22.2)	132.2(134.8)	3
Georgia 731	8.7(17.6)	1.7	32(28)	1.8(1.2)	2.9(1.8)	3240(2908)	40.8(36.8)	20.0(22.2)	129.1(133.4)	2
Hale 12	15.0(14.2)	1.2	32(30)	1.1(1.0)	2.6(2.8)	3240(3217)	.....	.....	.....	2
Magnolia	19.2(26.7)	2.3	40(28)	3.8(1.1)	1.2(1.5)	3024(2889)	40.3(37.9)	19.4(21.7)	134.3(134.7)	3
Mamredo	20.7(26.7)	2.3	30(28)	2.2(1.1)	1.5(1.5)	3128(2889)	38.7(37.9)	20.5(21.7)	125.9(134.7)	3
N45-2885	14.8(14.2)	1.2	35(30)	1.2(1.0)	2.2(2.8)	4086(3217)	.....	.....	.....	2
N45-2994	13.2(14.2)	1.2	34(30)	1.5(1.0)	2.5(2.8)	3335(3217)	.....	.....	.....	2
P. I. 97066	20.3(26.7)	2.3	40(28)	3.8(1.1)	1.2(1.5)	3658(2889)	40.3(37.9)	19.7(21.7)	133.3(134.7)	3
Ralsoy	20.1(26.7)	2.3	29(28)	2.2(1.1)	1.4(1.5)	3311(2889)	41.0(37.9)	20.7(21.7)	131.7(134.7)	3
Rose Non Pop	24.4(30.4)	2.7	29(25)	1.4(1.1)	2.1(1.5)	3410(3150)	38.4(37.8)	21.1(22.2)	131.2(134.8)	3
S100	12.9(15.9)	1.0	35(29)	1.9(1.0)	2.2(2.2)	3572(3065)	41.6(36.8)	19.7(22.2)	123.6(133.4)	4
6-40 M	25.7(35.6)	3.8	22(28)	2.6(1.2)	1.5(1.5)	2492(2945)	40.0(37.8)	21.0(22.2)	120.4(134.8)	2
Late midseason[1]										
Ogden	17.4	....	27	1.2	2.0	3065	38.6	21.4	135.0	6
Burdette 20	13.8(10.2)	3.0	37(24)	1.5(1.0)	2.8(2.9)	3436(3572)	.....	.....	.....	2
C.N.S.	13.2(19.1)	2.2	31(27)	4.0(1.3)	1.5(1.8)	3544(3024)	43.4(38.8)	17.7(21.8)	133.2(135.3)	5
Dortchsoy 31	8.7(9.9)	2.5	30(29)	1.0(1.0)	2.0(2.0)	3024(2926)	.....	.....	.....	2
Missoy	15.4(22.8)	2.8	49(29)	4.0(1.5)	1.2(1.4)	4404(2817)	40.2(38.6)	17.8(21.4)	137.2(135.0)	3
Monetta	12.1(22.8)	2.8	34(29)	4.0(1.5)	1.8(1.4)	3944(2817)	42.0(38.6)	16.6(21.4)	137.0(135.0)	3
N45-3563	8.6(9.9)	2.5	36(28)	1.6(1.0)	2.1(2.6)	3360(3194)	.....	.....	.....	2
Palmetto	9.6(17.4)	1.9	48(27)	3.0(1.2)	2.0(2.0)	4124(3065)	42.4(38.6)	17.1(21.4)	136.5(135.0)	6
P. I. 89775A	20.0(22.8)	2.8	37(29)	2.2(1.5)	2.2(1.4)	3516(2817)	39.9(38.6)	19.6(21.4)	135.8(135.0)	3
Roanoke	23.5(19.1)	2.2	38(27)	2.5(1.3)	1.8(1.9)	2945(3107)	37.5(38.8)	21.8(21.8)	134.6(135.3)	5
Tanner	8.2(14.7)	2.3	39(26)	4.0(1.2)	2.5(2.1)	4536(3065)	41.1(37.0)	17.9(23.5)	138.4(133.7)	4
Tenn. Non Pop	23.3(22.8)	3.4	47(28)	2.2(1.5)	1.2(1.2)	2800(2835)	40.8(39.4)	18.8(20.4)	135.8(136.2)	2
Tokyo	15.0(22.8)	3.4	36(28)	1.6(1.5)	1.0(1.2)	2439(2835)	39.8(39.4)	18.4(20.4)	137.4(136.2)	2
Volstate	20.0(17.4)	1.9	37(27)	2.0(1.2)	1.6(2.0)	3172(3065)	36.6(38.6)	21.5(21.4)	136.0(135.0)	6
Wood's Yellow	18.1(21.1)	2.6	33(28)	1.2(1.4)	1.6(1.7)	2191(2984)	40.2(38.6)	18.0(21.4)	134.3(135.0)	4
26-39 M	29.0(29.7)	4.0	35(30)	1.8(1.8)	1.1(1.4)	2716(2835)	41.6(38.8)	18.8(21.8)	135.7(135.3)	2

[1] Numbers in parentheses are values for Ogden when grown during the same years.

(Continued)

Appendix Table 11.—Continued

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Late[2]										
Mamloxi	12.2	....	41	1.9	2.2	3411	41.4	17.6	139.0	6
Acadian	9.2(12.2)	1.9	52(41)	2.5(1.9)	1.8(2.2)	4320(3411)	39.2(41.4)	19.0(17.6)	138.8(139.0)	6
Auburn 1	10.9(13.9)	3.5	38(41)	4.5(2.0)	1.8(2.0)	4279(3217)	43.6(43.3)	15.5(16.6)	138.2(137.0)	2
Axtoxellex	14.0(15.2)	2.6	51(40)	5.0(2.1)	1.7(1.8)	4447(3311)	40.6(41.9)	16.6(17.1)	141.3(138.4)	3
Cherokee	8.6(13.4)	2.3	42(42)	2.6(1.9)	2.6(2.2)	2607(3311)	44.0(41.2)	17.5(17.9)	135.9(139.7)	5
Clemson	12.4(12.0)	2.0	40(36)	3.3(2.1)	1.9(1.8)	3979(3544)	42.9(40.6)	17.8(17.2)	136.3(139.0)	2
Delsta	19.8(15.2)	2.6	39(40)	1.6(2.1)	1.2(1.8)	2506(3311)	42.1(41.9)	17.6(17.1)	135.1(138.4)	3
Gatan	11.3(13.4)	2.3	53(42)	4.6(1.9)	2.6(2.2)	4725(3311)	41.5(41.2)	16.6(17.9)	140.6(139.7)	5
JW-45	7.2(4.8)	1.5	41(46)	2.5(1.0)	3.0(3.2)	2566(3658)				2
Louisiana Green	5.7(9.1)	2.9	51(42)	4.2(1.6)	2.5(2.6)	4884(3462)	40.2(39.0)	18.5(19.0)	141.5(140.9)	3
L. Z.	13.9(15.2)	2.6	53(40)	2.5(2.1)	1.2(1.8)	4362(3311)	40.5(41.9)	18.4(17.1)	138.6(138.4)	3
Mamotan 6649	13.1(12.2)	1.9	37(41)	1.3(1.9)	1.8(2.2)	2965(3411)	40.1(41.4)	18.0(17.6)	139.2(139.0)	6
Nanda	18.4(15.8)	2.8	37(40)	2.0(2.1)	1.5(1.9)	2684(3287)	40.2(41.4)	18.9(17.6)	135.6(139.0)	4
Pelican 1	15.7(15.2)	2.6	49(40)	3.6(2.1)	1.2(1.8)	4491(3311)	40.6(41.9)	18.7(17.1)	139.2(138.4)	3
P. I. 85867	5.8(4.8)	1.5	40(46)	2.8(1.0)	3.5(3.2)	3658(3658)				2
Seminole	8.2(12.2)	1.9	44(41)	3.5(1.9)	2.1(2.2)	1989(3411)	43.9(41.4)	17.3(17.6)	137.6(139.0)	6
Yelnando	8.0(9.1)	2.9	48(42)	2.8(1.6)	2.8(2.6)	2908(3462)	38.6(39.8)	19.4(19.0)	136.1(140.9)	3

[2] Numbers in parentheses are values for Mamloxi when grown during the same years.

Appendix Table 12. Average Seed and Hay Yields, Delta Farm, Cotton Branch Experiment Station, Soudan, 1936-40

Variety	Seed production			Hay production		
	Mean yield per acre	L.S.D. 5%	Years tested	Mean yield per acre	L.S.D. 5%	Years tested
	Bushels	*Bushels*	*Number*	*Tons*	*Tons*	*Number*
Arksoy 2913	14.4	2.6	5	2.17	0.36	5
Arksoy 2905	17.4	2.6	5	2.14	0.36	5
Arksoy 2908	16.7	2.6	5	2.28	0.36	5
Arksoy 2914	13.6	2.6	5	2.04	0.36	5
Arksoy 37335	16.6(16.0)[1]	2.7	4	2.26(2.18)[1]	0.38	4
Chiquita	10.7	2.6	5	2.48(2.15)[1]	0.36	4
Mammoth Brown	13.8(16.0)[1]	2.7	4	2.92(2.18)[1]	0.38	4
Southern Prolific	11.5	2.6	5	2.28	0.36	5
Delnoshot	13.1	2.6	5	2.67	0.36	5
Delsta 6676	13.6	2.6	5	3.08	0.36	5
Laredo	11.7	2.6	5	2.43(2.15)[1]	0.38	4
Macoupin	9.2(16.0)[1]	2.7	4	1.26(2.18)[1]	0.38	4
Mamloxi	14.4	2.6	5	2.69	0.36	5
Mamotan	16.9	2.6	5	3.77	0.36	5
Mamredo 607	14.7	2.6	5	2.03	0.36	5
Tokyo	14.2	2.6	5	2.83	0.36	5
White Biloxi	11.3	2.6	5	3.05	0.36	5

[1] Yield for Arksoy 2913 for the four years.

Appendix Table 13. Average Seed and Hay Yields, Delta Substation, Cotton Branch Experiment Station, Clarkedale, 1940-46

Variety	Seed production			Hay production		
	Mean yield per acre[1]	L.S.D. 5%	Years tested	Mean yield per acre[1]	L.S.D. 5%	Years tested
	Bushels	*Bushels*	*Number*	*Tons*	*Tons*	*Number*
Arksoy 2913	19.0	....	4	2.52	.....	6
Boone	11.6(19.4)	4.4	2	1.72(2.48)	0.52	2
Gibson	11.5(19.4)	4.4	2	2.27(2.48)	0.52	2
Macoupin	8.4(17.4)	3.3	3	1.62(2.59)	0.50	3
Mingo	6.8(19.4)	4.4	2	1.24(2.48)	0.52	2
Patoka	12.0(19.4)	4.4	2	1.88(2.48)	0.52	2
Scioto	8.8(19.4)	4.4	2	1.39(2.48)	0.52	2
Arkan	13.2(17.4)	3.3	3	2.48(2.53)	0.33	5
Arksoy	16.9(17.4)	3.3	3	2.61(2.59)	0.50	4
Arksoy 2905	20.0(19.0)	2.7	4	2.52(2.52)	0.50	6
Arksoy 2908	17.7(17.4)	3.3	3	2.74(2.59)	0.50	4
Delsoy	23.0(19.4)	4.4	2	2.82(2.48)	0.52	2
Easycook	18.3(19.8)	4.6	2	2.73(2.32)	0.53	3
Georgian	19.2(19.4)	4.4	2	2.86(2.48)	0.52	2
Herman	13.5(19.4)	4.4	2	2.43(2.48)	0.52	2
Mammoth Brown	13.2(18.6)	4.6	2	3.08(2.70)	0.53	2
Ogden	20.2(17.4)	3.3	3	2.68(2.31)	0.37	5
Ralsoy	19.8(19.0)	2.7	4	2.61(2.)	0.33	5
Southern Prolific	15.6(18.6)	4.6	2	2.50(2.70)	0.53	2
Virginia	13.4(20.8)	3.2	3	2.59(2.84)	0.43	3
Laredo	10.8(19.4)	4.4	4	2.71(2.56)	0.39	5
Missoy	9.0(19.4)	4.4	2	3.06(2.36)	0.67	2
Monetta	18.4(19.4)	4.4	2	2.68(2.42)	0.43	4
Nanda	13.8(17.4)	3.3	3	3.37(2.27)	0.43	3
Palmetto	14.1(19.4)	4.4	2	2.67(2.42)	0.43	4
Tanner	11.7(17.4)	3.3	3	2.90(2.31)	0.37	5
Tenn. Non Pop	18.0(17.4)	3.3	3	3.33(2.27)	0.43	3
Volstate	18.0(17.4)	3.3	3	3.28(2.31)	0.37	5
Wood's Yellow	16.6(19.4)	4.4	2	4.12(2.48)	0.52	2
Barchet	15.7(19.0)	2.7	2	2.36(2.48)	0.52	2
Biloxi	10.0(19.4)	3.3	2	3.24(2.48)	0.52	2
Clemson	13.2(19.4)	3.3	2	2.75(2.42)	0.43	4
Delsta 6676	11.7(17.4)	3.3	3	3.70(2.59)	0.50	4
Looney 3	18.6(19.4)	4.4	2	3.36(2.42)	0.40	3
Mamloxi	15.8(19.0)	2.7	4	3.44(2.59)	0.50	4
Mamotan	16.4(18.6)	4.6	2	3.35(2.70)	0.53	2
Otootan	8.6(19.4)	4.4	2	3.07(2.42)	0.43	4
Seminole	10.8(19.4)	4.4	2	3.09(2.42)	0.40	3
White Biloxi	10.5(19.0)	2.7	4	3.28(2.59)	0.50	4

[1] Numbers in parentheses are values for Arksoy 2913 when grown during the same years.

Appendix Table 14. Agronomic and Chemical Data, Delta Substation, Cotton Branch Experiment Station, Clarkedale. 1943-48

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Early[1]										
S100	25.6	....	41	1.2	2.8	3287	42.8	19.6	126.1	4
C463	23.8(24.2)	5.2	36(38)	1.2(1.5)	3.3(2.6)	3436(3065)	39.9(42.5)	22.4(19.8)	118.8(124.3)	2
C508	23.6(24.2)	5.2	30(38)	1.5(1.6)	3.4(2.6)	3065(3411)	41.8(42.5)	22.2(19.8)	123.1(124.3)	2
Gibson	26.3(24.2)	5.2	35(38)	2.2(1.5)	3.2(2.6)	3544(3065)	40.1(42.5)	21.9(19.8)	126.4(124.3)	2
Lincoln	21.4(24.2)	5.2	34(38)	1.6(1.5)	3.6(2.6)	3172(3065)	41.2(42.5)	22.2(19.8)	128.2(124.3)	2
Patoka	25.3(24.2)	5.2	31(38)	1.4(1.5)	3.5(2.6)	2880(3065)	42.9(42.5)	21.2(19.8)	129.2(124.3)	2
Early midseason[2]										
Ogden	31.0	....	36	1.4	2.1	2800	39.5	20.8	134.3	6
Arkan	20.0(32.4)	4.2	32(36)	2.2(1.2)	2.2(1.6)	3240(2732)	42.8(39.4)	19.6(21.2)	131.2(134.8)	2
Arksoy 2913	22.0(31.0)	2.5	34(36)	2.0(1.4)	1.8(2.1)	3385(2800)	42.6(39.5)	19.8(20.8)	132.2(134.3)	6
Armredo	25.6(46.0)	6.2	32(37)	4.1(1.2)	1.4(1.4)	4161(2668)	40.6(38.6)	19.0(21.4)	135.2(135.2)	2
Burdette 13	24.6(36.4)	4.1	44(35)	3.0(1.4)	1.9(2.1)	3600(2945)	41.7(38.0)	19.5(21.6)	134.2(136.5)	2
Burdette 19	24.8(32.2)	3.2	40(36)	2.8(1.4)	2.1(2.3)	3780(3107)	42.4(38.2)	20.2(21.4)	133.4(134.0)	3
Delsoy	25.1(36.6)	4.2	38(37)	3.1(1.2)	1.2(1.4)	3240(2653)	43.3(39.3)	17.3(21.2)	134.5(134.5)	3
Dortchsoy 2	31.6(30.8)	2.9	37(35)	1.8(1.8)	2.5(2.5)	3004(2926)	38.8(39.1)	20.9(20.7)	133.6(134.8)	4
Dortchsoy 7	23.8(30.8)	2.9	35(35)	2.1(1.8)	2.1(2.5)	3516(2926)	41.2(39.1)	19.5(20.7)	132.6(134.8)	4
Gem	28.7(39.3)	4.3	38(36)	1.8(1.2)	1.8(1.7)	3004(2800)	41.4(38.6)	21.0(21.4)	132.6(135.2)	3
Georgia 731	14.0(32.4)	4.2	44(36)	3.2(1.2)	2.4(1.6)	2945(2732)	44.0(39.4)	19.0(21.2)	133.5(134.8)	2
Hale 12	23.8(25.2)	3.8	34(35)	1.8(1.8)	2.2(2.8)	3107(2889)	40.8(39.6)	20.0(20.2)	133.8(133.9)	2
Kilpatrick 10	23.8(25.2)	3.8	37(35)	2.4(1.8)	2.0(2.8)	3044(2889)	40.7(38.5)	20.9(21.3)	130.0(131.5)	2
Magnolia	24.7(36.6)	4.2	44(37)	3.0(1.2)	1.6(1.4)	3150(2653)	41.9(39.3)	20.2(21.2)	129.6(134.5)	3
Mamredo	23.0(36.6)	4.2	41(37)	2.3(1.2)	1.7(1.4)	3217(2653)	39.9(39.3)	19.9(21.2)	129.1(134.5)	3
N45-2885	19.6(25.2)	3.8	36(35)	1.9(1.8)	2.5(2.8)	3600(2889)	40.4(39.6)	19.6(20.2)	135.3(133.9)	2
N45-2994	22.0(25.2)	3.8	36(35)	1.9(1.8)	2.8(2.8)	3150(2889)	40.7(39.6)	19.6(20.2)	135.6(133.9)	2
P. I. 97066	21.2(33.4)	3.3	45(38)	2.8(1.2)	1.9(1.7)	3910(2766)	42.4(39.1)	19.2(21.2)	131.8(133.8)	4
Ralsoy	19.0(36.6)	4.2	32(37)	1.6(1.2)	1.2(1.4)	3311(2653)	42.6(39.3)	20.1(21.2)	132.4(134.5)	3
Rose Non Pop	29.0(39.3)	4.3	38(36)	2.1(1.2)	1.8(1.7)	3544(2800)	39.4(38.6)	20.3(21.4)	133.0(135.2)	3
6-40 M	31.4(46.0)	6.2	32(37)	2.0(1.2)	1.4(1.4)	2700(2668)	41.1(38.6)	20.2(21.4)	129.0(135.2)	2
Late midseason[2]										
Ogden	29.2	....	36	1.4	2.1	2926	40.1	20.8	134.6	6
Burdette 20	20.2(25.0)	3.3	48(34)	2.5(1.5)	2.2(2.6)	4050(3516)	41.2(39.2)	21.0(21.8)	133.1(131.6)	2
CNS	16.0(31.4)	2.5	38(36)	4.4(1.5)	2.1(2.2)	3360(2984)	44.2(39.9)	17.2(21.4)	132.9(135.0)	5
Dortchsoy 31	21.8(24.2)	2.7	32(36)	1.1(1.8)	2.4(2.8)	3194(3004)	39.0(40.4)	20.4(20.3)	135.6(134.4)	2
Missoy	18.4(34.7)	3.5	55(38)	4.2(1.3)	2.2(1.5)	4050(2766)	42.1(39.9)	17.7(21.2)	134.4(135.0)	3
Monetta	18.0(34.7)	3.5	43(38)	4.4(1.3)	1.5(1.5)	3658(2766)	43.9(39.9)	15.6(21.2)	134.8(135.0)	3
N45-[illegible]	19.3(24.2)	2.7	40(36)	2.6(1.8)	2.9(2.8)	3385(3004)	38.6(40.4)	20.4(20.3)	136.2(134.1)	2

[1] Numbers in parentheses are values for S100 when grown during the same years.
[2] Numbers in parentheses are values for Ogden when grown during the same years.

(Continued)

Appendix Table 14.—Continued

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
Late midseason[2] (Con'd)	*Bushels*	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Palmetto	15.3(29.2)	2.2	51(36)	3.2(1.4)	2.4(2.1)	4014(2926)	43.5(40.1)	16.8(20.8)	134.9(134.6)	6
P. I. 88775A	25.3(34.7)	3.5	40(38)	2.6(1.3)	2.0(1.5)	3360(2766)	42.5(39.9)	18.1(21.2)	134.8(135.0)	3
Roanoke	30.7(31.4)	2.5	46(36)	2.7(1.5)	2.0(2.2)	2908(2984)	37.5(39.9)	21.6(21.4)	134.5(135.0)	5
Tanner	11.8(28.6)	2.8	44(35)	4.2(1.6)	2.7(2.6)	4447(3065)	43.9(39.7)	17.4(20.8)	138.0(135.2)	4
Tenn. Non Pop	21.2(30.2)	3.2	50(38)	3.0(1.9)	3.2(1.2)	2817(2700)	42.4(40.7)	18.6(20.8)	135.2(133.8)	2
Tokyo	19.6(30.2)	3.2	48(38)	3.8(1.9)	2.0(1.2)	2302(2700)	41.0(40.7)	18.7(20.8)	136.6(133.8)	2
Volstate	27.6(29.2)	2.2	44(36)	2.8(1.4)	2.1(2.1)	3065(2926)	37.6(40.1)	21.2(20.8)	135.2(134.6)	6
Wood's Yellow	24.0(33.2)	3.0	42(36)	1.6(1.2)	2.8(1.8)	2140(2889)	42.2(39.9)	17.7(21.2)	133.6(135.0)	4
26-39 M	32.8(43.2)	5.1	40(38)	2.6(1.5)	1.2(1.5)	2700(2835)	42.3(39.4)	19.4(21.4)	135.4(135.9)	2
Late[3]										
Mamloxi	16.8	....	46	1.8	2.2	3287	43.0	16.8	138.9	6
Acadian	11.6(16.8)	2.2	52(46)	2.8(1.8)	2.2(2.2)	3979(3287)	52.7(43.0)	18.0(16.8)	137.8(138.9)	6
Auburn 1	15.2(19.6)	4.6	42(48)	4.2(2.2)	1.5(2.0)	3812(2965)	43.6(43.4)	15.7(16.8)	136.2(136.7)	2
Aveyelles	10.1(19.6)	4.6	59(48)	5.0(2.2)	3.0(2.0)	4447(2965)	42.6(43.4)	15.6(16.8)	139.1(136.7)	2
Cherokee	12.2(22.9)	5.1	50(48)	3.6(1.9)	2.2(2.4)	2279(3044)	45.8(42.8)	16.3(17.1)	136.8(139.8)	2
Dassa	20.4(22.3)	3.8	46(47)	2.6(2.3)	2.4(1.7)	2520(3044)	42.5(43.1)	17.6(16.7)	133.7(137.8)	3
Gibson	18.2(22.9)	5.1	62(48)	5.0(1.9)	2.5(2.4)	3979(3044)	45.2(42.8)	15.6(17.1)	141.1(139.8)	2
Louisiana Green	11.9(15.9)	5.0	51(48)	3.5(1.2)	2.5(2.8)	3812(3150)	46.5(43.8)	16.3(16.6)	141.3(141.6)	2
LX	13.8(19.6)	4.6	61(48)	3.5(2.2)	2.2(2.0)	4676(2965)	42.2(43.4)	18.0(16.8)	135.4(136.7)	2
Manchuan 6649	19.4(19.3)	2.6	45(47)	1.9(1.9)	2.4(2.4)	2889(3150)	40.8(42.6)	18.1(17.3)	138.1(138.4)	4
Narda	15.8(18.3)	3.5	50(48)	2.5(1.9)	2.2(2.2)	2479(3024)	43.0(43.5)	17.3(16.7)	135.3(138.3)	3
Pedeon 1	12.4(19.6)	4.6	63(48)	3.8(2.2)	2.0(2.0)	4447(2965)	41.8(43.4)	18.0(16.8)	136.6(136.7)	2
Seminole	8.1(20.7)	3.1	51(48)	4.6(2.1)	2.2(1.9)	1705(3065)	45.3(43.3)	16.8(16.7)	137.2(138.8)	4
Yelnando	11.1(15.9)	5.0	48(48)	2.5(1.2)	3.0(2.8)	2622(3150)	45.2(43.8)	16.0(16.6)	135.7(141.6)	1

[2] Numbers in parentheses are values for Ogden when grown during the same years.
[3] Numbers in parentheses are values for Mamloxi when grown during the same years.

Appendix Table 15. Agronomic and Chemical Data, Mississippi County, 1943-44

Variety	Yield per acre[1]	Seed quality[1]	Seed per pound[1]	Protein[1]	Oil[1]	Iodine value of oil[1]
	Bushels	*Class*	*Number*	*Per cent*	*Per cent*	*Number*
Early						
S100	22.2	2.5	3172	42.4	19.9	124.9
Boone	19.0	2.8	3311	40.0	21.2	124.8
Chief	21.4	2.3	3910	39.1	22.0	126.4
Gibson	20.9	2.3	3572	39.4	21.4	129.2
Macoupin	20.1	2.0	3360	40.0	21.9	121.2
Patoka	19.2	1.8	3311	42.1	20.3	129.2
Difference required for significance, 5 per cent level	4.0					
Early midseason						
Ogden	34.2	1.5	2749	39.6	21.4	133.9
Arksoy 2913	22.7	1.0	3240	42.0	20.4	132.7
Magnolia	18.6	1.5	2800	41.8	20.2	130.6
Mamredo	22.2	1.5	3128	38.9	20.4	128.1
Ralsoy	16.8	1.5	3194	41.8	20.7	132.5
Difference required for significance, 5 per cent level	4.9					
Late midseason						
Volstate	28.0	1.0	2926	36.6	21.6	133.3
Monetta	19.4	1.5	3749	41.9	16.2	133.9
Wood's Yellow	23.0	1.0	1898	41.0	18.0	131.5
Difference required for significance, 5 per cent level	6.3					

[1] Mean for two years.

Appendix Table 16. Agronomic and Chemical Data, Desha County, 1943-48

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Early midseason[1]									
Ogden	18.8		31	2.4	3065	40.3	21.5	130.8	6
Arksoy 2913	16.0(18.8)	1.8	33(31)	2.5(2.4)	3877(3065)	43.3(40.3)	20.6(21.5)	130.1(130.8)	6
Avmredo	20.0(24.6)	3.4	31(28)	2.8(2.6)	4491(2926)	39.0(39.3)	21.4(22.6)	132.5(131.0)	2
Burdette 19	12.4(13.0)	2.5	38(34)	2.2(2.5)	3600(3150)	[2]	[2]	[2]	2
Delsoy	16.6(21.2)	2.4	28(28)	2.6(2.6)	3311(3024)	42.9(40.3)	18.6(21.5)	131.3(130.8)	3
Dortchsoy 2	19.6(16.4)	2.6	36(33)	2.1(2.2)	3600(3086)	[2]	[2]	[2]	3
Dortchsoy 7	13.2(16.4)	2.6	39(33)	2.1(2.2)	3910(3086)	[2]	[2]	[2]	3
Gem	20.6(23.0)	2.5	33(30)	2.6(2.4)	3263(3150)	41.9(39.3)	22.3(22.6)	128.3(131.0)	3
Hale 12	16.3(14.6)	3.6	34(33)	2.2(2.2)	3287(2871)	[2]	[2]	[2]	2
Kilpatrick 10	9.4(14.6)	3.6	33(33)	2.2(2.2)	3749(2871)	[2]	[2]	[2]	2
Mandarin	15.6(21.2)	2.4	42(28)	2.8(2.6)	3436(3024)	41.6(40.3)	20.8(21.5)	128.9(130.8)	3
Manredo	17.4(21.2)	2.4	34(28)	3.2(2.6)	3600(3024)	39.9(40.3)	20.5(21.5)	125.6(130.8)	3
N45-2885	14.2(14.6)	3.6	40(33)	2.5(2.2)	3600(2871)	[2]	[2]	[2]	2
N45-2994	15.7(14.6)	3.6	39(33)	2.6(2.2)	3489(2871)	[2]	[2]	[2]	2
P. I. 97066	13.6(21.2)	2.4	40(28)	2.5(2.6)	3812(3024)	43.7(40.3)	19.1(21.5)	129.3(130.8)	3
Ralsoy	19.7(21.2)	2.4	28(28)	2.4(2.6)	3600(3024)	43.0(40.3)	20.5(21.5)	130.6(130.8)	3
Rose Non Pop	19.6(23.0)	2.5	33(30)	2.2(2.4)	3572(3150)	38.5(39.3)	21.6(22.6)	127.4(131.0)	3
Shoe	14.0(18.8)	3.0	40(31)	3.3(2.0)	3910(3107)	41.8(42.4)	19.3(19.2)	121.7(130.4)	2
6-40M	18.2(24.6)	3.4	20(28)	2.3(2.6)	2732(2926)	41.9(39.8)	20.4(22.6)	125.8(131.0)	2
Late midseason[1]									
Ogden	18.9		29	2.6	3044	41.4	21.1	130.5	6
Burdette 20	12.7(14.7)	2.8	47(35)	3.1(2.4)	3844(3489)	[2]	[2]	[2]	2
CNS	10.5(19.8)	2.3	36(30)	2.0(2.5)	3687(3004)	43.4(41.0)	18.9(22.0)	129.0(130.5)	5
Dortchsoy 31	21.0(18.6)	4.4	39(32)	1.8(1.5)	3128(3150)	[2]	[2]	[2]	2
Manredo	10.0(14.0)	2.6	32(20)	3.2(2.7)	2800(2965)	44.6(42.2)	17.8(20.4)	134.4(130.3)	2
Mexsoy	9.3(18.0)	2.3	47(25)	3.2(3.1)	4362(2800)	43.0(41.4)	18.5(21.1)	133.7(130.5)	3
Manchu	10.0(18.0)	2.3	36(26)	3.1(3.1)	3910(2800)	43.8(41.4)	15.8(21.1)	133.8(130.5)	3
N45-3563	18.6(18.6)	4.4	43(32)	1.5(1.5)	3194(3150)	[2]	[2]	[2]	2
Palmetto	7.3(18.9)	2.0	55(29)	2.4(2.8)	4124(3004)	43.7(41.4)	17.8(21.1)	132.1(130.5)	6
P. I. 89775A	15.3(18.0)	2.3	38(26)	3.6(3.1)	3910(2800)	41.3(41.4)	19.5(21.1)	133.9(130.5)	3
Ransoy	19.6(19.8)	2.3	36(30)	1.9(2.5)	3263(3004)	38.4(41.0)	22.7(22.0)	132.0(130.5)	5
Tanner	9.5(19.8)	3.2	51(35)	2.4(1.6)	4279(3385)	[2]	[2]	[2]	3
Tenn. Non Pop	12.5(14.0)	2.6	35(18)	2.8(2.7)	2908(2965)	42.7(42.2)	19.2(20.4)	134.1(130.3)	2
Tokyo	12.8(14.0)	2.6	26(18)	2.8(2.7)	2479(2965)	40.8(42.2)	19.5(20.4)	135.3(130.3)	2
Vedette	18.2(18.9)	2.0	38(30)	1.6(2.8)	3385(3004)	38.1(41.4)	21.7(21.1)	133.4(130.5)	6
Woods Yellow	12.4(19.0)	2.0	34(30)	3.4(2.8)	2234(2984)	42.7(41.4)	18.4(21.1)	130.1(130.5)	4
26-40M	21.7(19.8)	3.1	24(18)	1.9(3.4)	3128(2700)	41.2(41.0)	20.0(22.0)	132.4(130.5)	2

[1] Numbers in parentheses are values for Ogden when grown during the same years.
[2] No chemical analyses were made after 1945 for this test.

Appendix Table 17. Agronomic and Chemical Data, Miller County, 1913-48

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Early midseason[1]										
Ogden	19.2	....	26	1.2	2.3	3150	39.3	21.9	132.9	6
Arksoy 2913	12.7(19.2)	1.8	26(26)	1.4(1.2)	2.0(2.3)	3979(3150)	40.6(39.3)	20.8(21.9)	130.6(132.9)	6
Armredo	16.2(26.0)	3.0	26(25)	2.0(1.4)	3.1(3.1)	4447(2835)	38.2(41.5)	22.2(22.5)	131.9(132.2)	2
Burdette 19	7.6(10.2)	1.8	33(29)	1.1(1.2)	2.4(2.1)	3877(3086)	40.8(36.9)	20.8(22.8)	130.4(133.2)	2
Delsoy	17.2(21.2)	3.0	28(27)	1.6(1.6)	2.1(2.8)	3411(3217)	43.1(40.9)	17.8(21.4)	130.5(131.0)	3
Dortchsoy 2	16.4(17.1)	2.2	26(24)	1.2(1.2)	2.0(1.9)	3217(3086)	36.6(36.9)	23.0(22.8)	133.2(133.2)	3
Dortchsoy 7	12.4(17.1)	2.2	27(24)	1.2(1.2)	2.1(1.9)	4447(3086)	36.0(36.9)	22.2(22.8)	133.2(133.2)	3
Gem	12.8(19.2)	2.6	24(25)	1.5(1.2)	2.6(2.7)	3780(3194)	38.0(38.1)	22.7(23.1)	131.1(134.5)	3
Hale 12	27.1(22.9)	2.9	26(24)	1.1(1.2)	1.9(2.0)	2835(2716)	43.5(42.5)	21.0(21.2)	128.7(127.2)	2
Magnolia	11.2(21.2)	3.0	36(27)	1.8(1.6)	2.1(2.8)	3462(3217)	39.9(40.9)	21.2(21.4)	127.5(131.0)	3
Mamredo	10.0(21.2)	3.0	28(27)	2.0(1.6)	2.6(2.8)	3688(3217)	40.4(40.9)	21.1(21.4)	123.1(131.0)	3
N45-2885	15.5(22.9)	2.9	30(24)	1.4(1.2)	2.2(2.0)	3658(2716)	42.9(42.5)	20.5(21.2)	128.6(127.2)	2
N45-2994	17.0(22.9)	2.9	34(24)	1.7(1.2)	2.2(2.0)	3240(2716)	43.3(42.5)	19.4(21.2)	131.4(127.2)	2
P. I. 97066	9.3(21.2)	3.0	34(27)	2.6(1.6)	2.4(2.8)	4014(3217)	40.7(40.9)	20.8(21.4)	127.2(131.0)	3
Ralsoy	12.0(21.2)	3.0	26(27)	1.7(1.6)	2.2(2.8)	3844(3217)	42.4(40.9)	20.5(21.4)	130.3(131.0)	3
Rose Non Pop	16.5(19.2)	2.6	26(25)	1.3(1.2)	2.0(2.7)	3600(3194)	37.5(38.1)	21.6(23.1)	131.3(134.5)	3
6-40M	15.6(26.0)	3.0	22(25)	1.5(1.4)	1.6(3.1)	2766(2835)	38.2(41.5)	21.7(22.5)	124.2(132.2)	2
Late midseason[1]										
Ogden	15.9	....	27	1.2	2.3	3150	40.5	21.0	131.8	6
Burdette 20	9.7(8.1)	2.9	41(28)	1.4(1.2)	2.1(2.5)	3489(3287)	40.1(37.2)	21.1(22.5)	133.3(134.3)	2
CNS	18.8(15.4)	2.1	34(28)	3.1(1.4)	3.1(2.5)	3600(2871)	44.6(40.1)	19.5(21.4)	129.8(132.6)	4
Dortchsoy 31	15.9(10.9)	4.0	33(32)	1.2(1.2)	2.2(3.0)	2766(2534)	44.0(43.5)	19.3(20.8)	129.4(128.4)	1
Missoy	15.7(22.6)	3.0	44(29)	2.8(1.3)	2.1(2.3)	4404(2965)	39.3(42.8)	19.8(19.9)	132.0(130.2)	2
Monetta	12.1(18.9)	3.0	36(29)	2.3(1.3)	1.8(2.3)	3718(2965)	41.2(42.8)	17.6(19.9)	131.0(130.2)	3
N45-3563	13.7(10.9)	4.0	40(32)	1.8(1.2)	2.5(3.0)	3600(2534)	42.7(43.5)	19.5(20.8)	128.0(128.4)	1
Palmetto	9.8(15.4)	2.1	47(28)	2.0(1.3)	2.8(2.4)	4200(3086)	42.5(40.5)	18.6(21.0)	131.3(131.8)	4
P. I. 89775A	12.0(18.9)	3.0	36(29)	1.4(1.3)	2.6(2.3)	4124(2965)	38.8(42.8)	20.8(19.9)	131.2(130.2)	3
Roanoke	20.3(15.4)	2.1	36(28)	1.8(1.4)	2.2(2.5)	3311(2871)	36.6(40.1)	22.6(21.4)	131.6(132.6)	4
Tanner	8.1(14.3)	2.5	39(29)	2.8(1.5)	2.7(2.7)	4447(2835)	44.3(39.8)	18.0(21.5)	136.8(134.4)	3
Tenn. Non Pop	18.3(18.6)	3.8	36(28)	1.1(1.0)	2.2(2.0)	2908(3544)	41.9(41.6)	20.1(20.2)	132.2(128.0)	1
Tokyo	21.5(18.6)	3.8	37(28)	1.2(1.0)	2.2(2.0)	2492(3544)	39.2(41.6)	20.4(20.2)	132.9(128.0)	1
Volstate	18.7(14.6)	2.1	38(28)	1.6(1.3)	2.0(2.4)	3489(3240)	37.4(40.5)	21.9(21.0)	133.3(131.8)	5
Wood's Yellow	18.3(16.8)	2.4	34(28)	1.1(1.3)	2.6(2.2)	2362(3240)	39.6(39.8)	19.8(21.0)	131.3(132.7)	3
26-39M	16.8(22.6)	3.0	26(27)	1.6(1.5)	2.8(2.5)	2908(2548)	39.8(43.0)	20.8(20.3)	131.2(131.0)	2

[1] Numbers in parentheses are values for Ogden when grown during the same years.

(Continued)

Appendix Table 17.—Continued

Variety and group	Mean yield per acre	L.S.D. 5%	Plant height	Lodging	Seed quality	Seeds per pound	Protein	Oil	Iodine value of oil	Years tested
	Bushels	*Bushels*	*Inches*	*Class*	*Class*	*Number*	*Per cent*	*Per cent*	*Number*	*Number*
Late[2]										
Mamloxi	16.2	....	42	1.6	2.4	3263	42.9	18.1	134.3	4
Acadian	14.1(16.2)	1.7	47(42)	2.0(1.6)	1.9(2.4)	3780(3263)	43.0(42.9)	19.4(18.1)	134.6(134.3)	4
Auburn 1	11.2(19.5)	3.8	36(40)	1.6(1.5)	1.2(2.0)	4050(3107)	41.0(43.8)	17.0(18.2)	132.2(131.8)	1
Avoyelles	14.5(23.2)	2.6	43(42)	2.6(1.8)	3.0(2.0)	4050(2965)	42.1(44.0)	18.1(17.8)	137.8(133.7)	2
Cherokee	10.1(16.2)	1.7	40(42)	2.1(1.4)	2.8(2.4)	2413(3489)	46.3(42.3)	17.6(18.6)	132.7(134.2)	4
Delsta	19.0(23.2)	2.6	41(42)	1.6(1.8)	2.8(2.0)	2302(2965)	43.4(44.0)	17.9(17.8)	131.7(133.7)	2
Gatan	11.6(16.2)	1.7	43(42)	3.1(1.4)	2.4(2.4)	4536(3489)	42.9(42.3)	17.2(18.6)	136.2(134.2)	4
JW 45	12.3(10.6)	2.2	44(48)	2.0(1.0)	3.5(2.8)	2766(3572)	44.0(47.2)	17.5(16.1)	126.9(131.7)	1
Louisiana Green	10.2(9.1)	2.3	49(43)	2.0(1.1)	3.4(2.9)	4239(3844)	42.7(41.4)	18.2(18.6)	135.1(135.0)	2
LZ	14.7(23.2)	2.6	45(42)	2.2(1.8)	1.7(2.0)	3749(2965)	43.2(44.0)	18.9(17.8)	135.9(133.7)	2
Mamotan 6640	16.8(16.2)	1.7	40(42)	1.5(1.6)	2.4(2.4)	2835(3263)	43.1(42.9)	18.5(18.1)	136.0(134.3)	4
Nanda	17.3(18.0)	2.2	37(41)	1.6(1.7)	2.2(2.2)	2684(3194)	40.0(41.9)	19.9(18.6)	132.0(134.9)	3
Pelican 1	14.8(23.2)	2.6	45(42)	2.3(1.8)	1.7(2.0)	3877(2965)	42.2(44.0)	19.7(17.8)	136.5(133.7)	2
P. I. 85897	10.1(10.6)	2.2	46(48)	3.8(1.0)	3.5(2.8)	3780(3572)	45.5(47.2)	17.5(16.1)	127.9(131.7)	1
Seminole	8.2(16.2)	1.7	45(42)	2.6(1.6)	3.2(2.4)	1898(3263)	44.9(42.9)	18.0(18.1)	133.8(134.3)	4
Yelnando	12.2(9.1)	2.3	49(43)	1.2(1.1)	3.4(2.9)	3107(3844)	46.0(41.4)	19.2(18.6)	131.4(135.0)	2

[2] Numbers in parentheses are values for Mamloxi when grown during the same years.

Appendix Table 18. Average Seed and Hay Yields, Fruit and Truck Branch Experiment Station, Hope, 1936-48

Variety	Seed production		Hay production		
	Mean yield per acre[1]	L.S.D. 5%	Mean yield per acre[1]	L.S.D. 5%	Years tested
	Bushels	*Bushels*	*Tons*	*Tons*	*Number*
Arksoy	10.1	....	1.84	.....	13
Amherst	7.6(7.9)	4.9	1.52(2.10)	0.35	4
Arkan	12.3(11.6)	2.1	1.94(1.87)	0.28	6
Biloxi	3.5(7.9)	4.9	2.32(2.06)	0.30	4
Chiquito	8.4(10.2)	2.0	1.97(1.96)	0.22	10
Clemson	7.4(11.0)	1.6	1.98(1.73)	0.20	9
Delsta 6676	8.8(11.6)	2.1	2.24(1.87)	0.28	6
Gatan	6.9(9.8)	2.7	2.04(1.44)	0.25	3
Laredo	7.5(10.1)	1.6	1.92(1.84)	0.18	13
Looney 3	11.7(12.4)	2.2	2.43(1.87)	0.28	6
Macoupin	10.8(11.6)	2.1	1.66(1.87)	0.28	6
Mamloxi	5.5(9.8)	1.8	1.92(1.96)	0.22	11
Mammoth Brown	8.8(10.2)	2.0	2.07(1.96)	0.22	10
Mamredo	10.4(10.3)	1.7	1.88(1.86)	0.19	12
Nanda	10.4(11.6)	2.1	2.35(1.87)	0.28	6
Ogden	13.3(10.3)	1.6	2.07(1.68)	0.20	8
Ototan	3.2(9.8)	1.8	2.17(1.92)	0.20	11
Ozark	8.0(7.9)	4.9	1.44(2.10)	0.35	4
Palmetto	6.8(8.9)	2.3	1.64(1.70)	0.31	5
Ralsoy	12.2(11.4)	2.2	1.71(1.76)	0.26	4
Roanoke	6.4(6.7)	2.7	1.38(1.20)	0.22	2
S100	12.0(9.8)	2.7	1.71(1.76)	0.26	3
Shanghai	6.7(7.9)	4.9	2.24(2.10)	0.35	4
Southern Prolific	5.8(7.9)	4.9	1.81(2.10)	0.35	4
Tanner	9.2(10.9)	1.8	1.94(1.70)	0.22	7
Tokyo	7.7(7.9)	4.9	2.21(2.10)	0.35	4
Virginia	7.6(10.4)	2.5	1.54(2.07)	0.29	8
Volstate	11.1(10.3)	1.6	1.94(1.68)	0.26	8
White Biloxi	5.2(10.2)	2.0	2.15(1.96)	0.22	10
Yelredo	8.6(11.6)	2.1	2.17(1.87)	0.28	6

[1] Numbers in parentheses are values for Arksoy when grown during the same years.

Appendix Table 19. Average Seed and Hay Yields, Livestock and Forestry Branch Station, Batesville, 1942-45

Variety	Seed production			Hay production		
	Mean yield per acre[1]	L.S.D. 5%	Years tested	Mean yield per acre[1]	L.S.D. 5%	Years tested
	Bushels	*Bushels*	*Number*	*Tons*	*Tons*	*Number*
Ogden	8.8	1.5	4	1.29	0.17	3
Arkan	3.2(8.8)	2.4	2	0.32(1.09)	0.17	1
Arksoy	8.0	1.5	4	0.83	0.17	3
Laredo	6.3(8.6)	1.3	3	1.08(0.99)	0.17	2
Looney 3	7.8	1.5	4	0.94	0.17	3
Ralsoy	7.7	1.5	4	0.84	0.17	3
Tanner	7.8	1.5	4	0.95	0.17	3
Volstate	8.8	1.5	4	0.88	0.17	3

[1] Numbers in parentheses are values for Ogden when grown during the same years.

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Arkansas Agricultural Experiment Station

The Arkansas Agricultural Experiment Station is part of the University of Arkansas College of Agriculture. The College also includes the resident teaching program in agriculture and home economics, and the Arkansas Agricultural Extension Service.

Serving agriculture—and particularly Arkansas agriculture—is the aim of the Experiment Station. Its work is carried on at the Main Station at the University; the four branch stations in Lee, Arkansas, Hempstead, and Independence counties; and in outlying areas around the state.

The staff of the Experiment Station is working on many farm problems. There are research projects on cotton, rice, and other field crops; on fruit and truck crops, and forests; on pastures and feed; on livestock and dairying; and on farm buildings. Other studies include mechanization of both large and small farms, farm management, and marketing.

Information about the station and its work, and a list of available publications, can be obtained from Dr. Lippert S. Ellis, Dean and Director, University of Arkansas College of Agriculture, Fayetteville.